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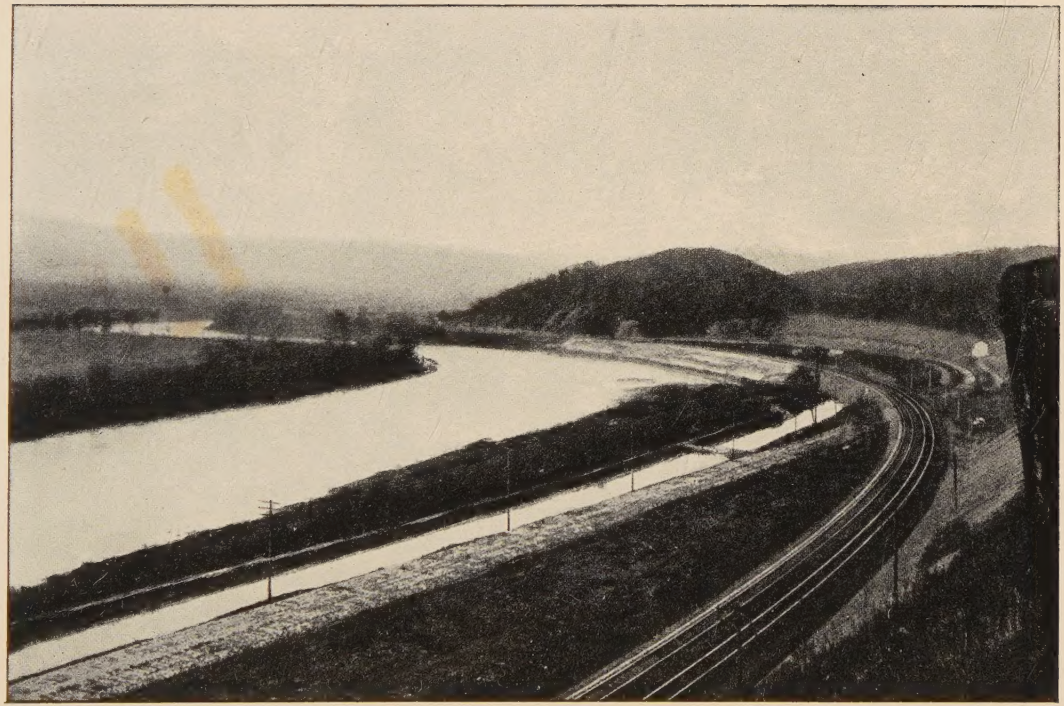
HISTORIC HIGHWAYS OF AMERICA

VOLUME 13



FOUR ROUTES TO THE WEST

[*An interesting view of Juniata River near Newport, Pennsylvania; the abandoned canal; the old line of the Pennsylvania Railway; and the new line of the railway*]

HISTORIC HIGHWAYS OF AMERICA
VOLUME 13

The Great American Canals

BY

ARCHER BUTLER HULBERT

With Maps and Illustrations

Volume I

The Chesapeake and Ohio Canal

and

The Pennsylvania Canal

THE ARTHUR H. CLARK COMPANY
CLEVELAND, OHIO
1904

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PREFACE

CANALS played an important part in the later pioneer movement westward in America. Two monographs of this series, therefore, are devoted to the rise and building of three great canal routes westward, the Chesapeake and Ohio, the Pennsylvania, and the Erie canals.

The present volume is devoted to the Potomac Company and its successor, the Chesapeake and Ohio Canal Company, and finally the Pennsylvania Canal. In each case the birth and development of the two great railroad routes which follow these canals, the Baltimore and Ohio and the Pennsylvania Railways, is also sketched.

The history of the Chesapeake and Ohio Canal is contained in the reports of the company; Hon. Theodore B. Klein has written a very interesting account of the Pennsylvania canals, *The Canals of Penn-*

sylvania, and the System of Internal Improvements of the Commonwealth; Mr. William Bender Wilson has included a fine sketch of the Allegheny Portage Railway in his *History of the Pennsylvania Railroad Company.* To both of these the author is indebted for advice and assistance.

A. B. H.

Marietta, Ohio, March 1, 1904.

The Great American Canals

Volume I

The Chesapeake and Ohio Canal

and

The Pennsylvania Canal

CHAPTER I

INTRODUCTORY

CANALS are of two classes, those admitting large and those admitting small craft; the former are technically known as ship canals, the latter, barge canals. It is, of course, the barge canal, in its relation to the western movement of the American people, that agrees in all essentials with our present study of Historic Highways and which should be considered in any study of the subject.

The subject of fast and safe transportation of freight has become so commonplace in our day of railways that it is with difficulty that we catch any true idea of the economic importance to our forefathers of the invention and general use of such an ordinary thing as a good wagon. The meaning of the successful opening of a great canal, such as the Erie Canal, can hardly be understood unless one has known

nothing of the problem of transportation save as represented by the pack-saddle and "Conestoga" wagon. When looked at from such a standpoint, the lock canal is at once seen to be one of the grandest inventions of any age; it was every whit as far ahead of any system of transportation when it was discovered as the railway is in advance of the best canal today.

From this point of view — that of the comparative value of this method of moving freight over any method known before it — it must seem most inexplicable that the lock canal was the invention of moderns. The simple canal lock, with all its immense benefits, escaped the notice of the builders of pyramids or the "Hanging Gardens," of the Parthenon and of the engineers of the Cloaca Maxima. Egypt, Babylon, Persia, Greece, Rome, with all their vast needs in the way of handling heavy freight, never invented the simple hydraulic lock. And this is the more astonishing because they dug great canals; the Royal Canal of Babylon was twice as long as our American Erie Canal; the Fossa Mariana, from the Rhône to the

Gulf of Stomalenine (102 B. C.), the Emperor Claudius's canal from the Tiber to the sea, the canal from the Nile to the port of Alexandria, Odoacer's canal from Mentone, near Ravenna, to the sea, the Roman canals in England and Lombardy, the Moorish canals in Granada (which languished when Ferdinand conquered the country!) all indicate the knowledge the ancients had with this form of inland navigation.

The general early theory was to make inland navigation possible by means of a "canalization" of rivers. One of the most successful efforts in this direction is the Grand Canal of China, the great highway of the Middle Kingdom; it was built in the thirteenth century, to connect the waters of the Yang-ste and the Pei-ho Rivers, the former the great waterway of central China, the latter the waterway of the strategic province of Chili. This great work nearly a thousand miles in length is a series of canalized rivers. Other canals, such as that pushed forward by Charlemagne to unite the Rhine with the Danube, were almost impossible until the invention

of the lock. The blockheadedness of the Spaniard is most clearly shown in the attitude of a certain state paper, though, in fact, it very nearly voices a fundamental scientific law; with reference to the canalization of Spanish rivers a decree of a state council read: " . . if it had pleased God that these rivers should have been navigable, he would not have wanted human assistance to have made them such, but that, as he has not done it, it is plain that he did not think it proper that it should be done. To attempt it, therefore, would be to violate the decrees of his providence, and to mend these imperfections which he designedly left in his works." There was a vast deal of mending the imperfections of Providence before men found the secret of one of Providence's simplest laws.

In 1481 two engineers at Viterbo, Italy, invented the canal lock by which craft could be lifted or lowered from one level to another. The discovery gave great impetus to canal building, especially in Italy. The first canal in France was the Braire, built in 1605–1642. The Orleans was opened in 1675. Of all European works of

this character the Languedoc Canal, built by Riquet, from 1667 to 1881, was the most conspicuous. It connected the Bay of Biscay and the Mediterranean, its termini being Narbonne and Toulouse. It is one hundred and forty-eight miles in length and its summit level is six hundred feet above the sea, "while the works on its line embrace upwards of one hundred locks and fifty aqueducts, an undertaking which is a lasting monument of the skill and enterprise of its projectors; and with this work as a model it seems strange that Britain should not, till nearly a century after its execution, have been engaged in vigorously following so laudable an example."[1]

The Romans had built two canals in England, the Caer Dyke and the Foss Dyke; of the former only the name remains. "Camden in his *Britannia* states that the Foss Dyke was a cut originally made by the Romans, probably for water supply or drainage, and that it was deepened and rendered in some measure navigable in the year 1121 by Henry I. In 1762 it was reported on by Smeaton and

[1] *Encyclopedia Britannica*, "Canals."

Grundy, who found the depth at that time to be about two feet, eight inches. They, however, discouraged the idea of deepening by excavation. . . . It was resolved [1840] to increase the dimensions of the canal, and to repair the whole work . . . and thus that ancient canal, which is quoted by Telford and Nimmo as 'the oldest artificial canal in Britain,' was restored to a state of perfect efficiency, at a cost of £40,000."[2]

The internal navigation of Great Britain was the subject of legislation in 1423; locks were known on the river Lee as early as 1570. The seventeenth century saw considerable canal digging, but the island is so narrow that in early days the coasting trade and navigable rivers answered almost all purposes of commerce. About the middle of the eighteenth century the growth of manufacturing centers wrought great changes, and for half a century canal building in England came to the fore, though south of Durham no point was fifteen miles from navigation. The Duke of Bridgewater, procuring a grant for construction of canals

[2] *Id.*

in 1758, was the great promoter in this line of industry at this period. These were the brilliant days of John Smeaton, civil engineer and improver of hydraulic machinery. Born near Leeds in 1724, he achieved perhaps his most celebrated success in 1759, by the completion of the Eddystone lighthouse. His other famous works were building Ramsgate Harbor and the Forth and Clyde Canal in Scotland; this work, first proposed by Charles II, was completed in 1789, according to Smeaton's plans. It is thirty-five miles in length, passing over a summit level of one hundred and sixty feet, by means of thirty-nine locks. In Ireland the Grand Canal from Dublin to Ballinasloe, with a total length of one hundred and sixty-four miles, was built in 1765. In 1792 the Royal Canal leading from Dublin to Tormansburg, ninety-two miles, was completed. Nearly five thousand miles of canals have been built in Great Britain.

It was natural that an echo of the awakening of internal improvements in England should have been heard in her American colonies where such a vast field for such enterprise lay awaiting a similar awaken-

ing. It is believed that as early as 1750 a canal or sluice was dug in Orange County, New York, by Lieutenant-governor Colder for the transportation of stone. The earliest planned lock canal in the provinces was the Schuylkill and Susquehanna, surveyed from the Schuylkill River near Reading, Pennsylvania, to Middletown on the Susquehanna in 1762. Work on this canal was not begun until 1791, but only four miles were opened by 1794, when the work again paused. Not until 1821 was it resumed, and the canal was completed in 1827 under the name of the Union Canal. It became a division of the later Pennsylvania Canal.

The second canal survey in the American colonies was of a route between Chesapeake Bay and the Delaware River in 1764. A new survey was made of this proposed canal in 1769, under the auspices of the American Philosophical Society; it was not, however, until 1804 that work was commenced on this canal — the Chesapeake and Delaware, as it was known — and this was soon suspended. The route was resurveyed in 1822 and completed, thirteen and one-half miles long, in 1829.

It is interesting to note that the subject of canals was being widely mooted in America at a time far remote from the day when they came actually into existence. England waited a century after the celebrated Languedoc Canal in France proved what vast good this form of internal improvement could bring, before she took up the canal problem in earnest. Within half a century, and less, after canal building was common in England it became common in young America. We were comparatively quick to make the most of opportunities in this as in every branch of invention and promotion which helped toward annihilating distances. The great extent of our territory in itself was an inducement to this end. Our colonial roads were often impassable in the winter season and wretched in any wet weather; the main line of communication was the Atlantic Coast, never easily navigated and, for a large part of the year, extremely dangerous in these early days before the invention of the blessings of our present coast surveys, lighthouses, and lightships. As a consequence, it was natural that the idea gained

ground rapidly that if the splendid rivers which are scattered in profusion up and down our seaboard could be connected by canals a new era would dawn in our coastwise trade, which was, in fact, almost our only trade. Thus it came about that hosts of schemes were proposed for connecting our Atlantic rivers and bays.

In many cases our rivers were easily navigated for long distances into the interior; but these distances varied in different seasons of the year, and when, in the last quarter of the eighteenth century the western movement became prominent, and the rivers were ascended further than before, the question of the navigation of unnavigable waters came quickly to the fore. Unfortunately for their pocketbooks, our forefathers did not agree with the Spanish idea that improving unnavigable rivers was a wilful attempt "to mend the imperfections of providence." The story of the sorry attempts to make such rivers as the Mohawk and upper Potomac navigable proves that the Spanish decree was somehow in the right, whether the Spanish reasoning was correct or not.

The following letter written by Benjamin Franklin to S. Rhoads, Mayor of Philadelphia, from London, August 22, 1772, with reference to the improvement of rivers and building of canals is an interesting early view of the subject. Mayor Rhoads had evidently applied for and received data respecting the canals of Great Britain:

"I think I before acknowledg'd your Favour of Feb. 29. I have since received that of May 30. I am glad my Canal Papers were agreeable to you. I fancy work of that kind is set on foot in America. I think it would be saving Money to engage by a handsome Salary an Engineer from here who has been accustomed to such Business. The many Canals on foot here under different great Masters, are daily raising a number of Pupils in the Art, some of whom may want Employment hereafter, and a single Mistake thro' Inexperience in such important Works, may cost much more than the Expense of Salary to an ingenious young Man already well acquainted with both Principles and Practice. This the Irish have learnt at a dear rate in the first Attempt of their great

Canal, and now are endeavoring to get Smeaton to come and rectify their Errors. With regard to your Question, whether it is best to make the Schuylkill a part of the Navigation to the back Country, or whether the difficulty of that River, subject to all the Inconveniences of Floods, Ice, &c., will not be greater than the Expense of Digging, Locks, &c., I can only say that here they look on the constant Practicability of a Navigation, allowing Boats to pass and repass at all Times and Seasons, without Hindrance, to be a point of the greatest Importance, and, therefore, they seldom or ever use a River where it can be avoided. Locks in Rivers are subject to many more Accidents than those in still water Canals; and the Carrying away a few Locks by Freshets of Ice, not only creates a great Expense, but interrupts Business for a long time till repairs are made, which may soon be destroyed again, and thus the Carrying on a Course of Business by such a Navigation be discouraged, as subject to frequent interruptions. The Toll, too, must be higher to pay for such Repairs. Rivers are ungovernable things,

especially in Hilly Countries. Canals are quiet and very manageable. Therefore they are often carried on here by the Sides of Rivers, only on ground above the Reach of Floods, no other Use being made of the Rivers than to supply occasionally the waste of water in the Canals. I warmly wish Success to every Attempt for Improvement of our dear Country. . ."

The Revolutionary War put an end to many plans for the improvement of Franklin's "dear country." Immediately after the close of the war, however, the various projects were again advanced here and there as the young republic began to grasp the great opportunities that lay before it. Among the most important early undertakings were those which looked forward to a new West and the need of lines of communication in advance of the rough roads which were the only avenues of commerce. The scheme of improving the rivers which rose in the Alleghenies, and connecting their heads with the waterways which flowed into the Ohio River at Lake Erie, was one of the moving projects of the hour. The improvement of the James, Potomac, and

Mohawk Rivers for this purpose commanded the attention of the nation at the time; these projects were the first steps toward building the Chesapeake and Ohio and the Erie canals, and will be treated in the chapters devoted to those topics. It is our purpose here only to emphasize in general terms the mania for improving the minor waterways in which so many millions of dollars were wasted before such advice as that given by Franklin in 1772, as quoted, was found to be well-grounded.

The spirit of this enterprising but unfortunate movement cannot be caught better than by studying the papers and projects of a "Society for promoting the improvement of roads and inland navigation," formed in Philadelphia at the beginning of the last decade of the eighteenth century and of which the able but unfortunate Robert Morris was president. Much of Pennsylvania's leadership in works of improvement was due to the activity of this organization. One of the main objects of the society is stated in a memorial to the Pennsylvania Assembly dated February 7, 1791, the introduction of which reads:

"The memorial of 'The Society for promoting the improvement of roads and inland navigation,'

"*Reſpectfully ſheweth,*

"That your memoraliſts, reſiding in various parts of this ſtate, with a view to contribute their beſt endeavors to promote the internal trade, manufactures and population of their country, by facilitating every poſſible communication between the different parts of the ſtate, have lately formed themſelves into a ſociety, by the name above mentioned. And knowing that the Legiſlature, with the laudable intention of advancing the beſt intereſts of this commonwealth, and availing themſelves of the extenſive information, which they have obtained of the geography and ſituation of the country, have now under their conſideration the important ſubject of roads and inland navigation; we, therefore, beg leave, with all poſſible deference, to ſuggeſt ſome important conſiderations which have occurred to us in our enquiries into this ſubject." A description of the position of Pennsylvania then follows, with an outline of her rivers which, as was then believed,

were to become by improvement the commercial avenues of the dawning age. "To combine the intereſts of all the parts of the ſtate, and to cement them in a perpetual commercial and political union, by the improvement of thoſe natural advantages, is one of the greateſt works which can be ſubmitted to *legiſlative* wiſdom; and the preſent moment is particularly auſpicious for the undertaking, and if neglected, the loſs will be hard to retrieve."[3]

Following this the river systems of Pennsylvania are taken up in order, showing the number of miles of waterways which it was supposed were capable of being connected and made avenues of trade. The two main divisions and their various subdivisions were as follows:

"*Delaware Navigation*

1. From the tide water at Trenton falls to lake Otſego, the head of the northeaſt branch of Suſquehanna

2. From the tide water on Delaware to Oſwego on lake Ontario

[3] *An Historical Account of the Rise, Progress and Present State of the Canal Navigation in Pennsylvania* (Philadelphia, 1795), p. 1.

"*Suſquehanna Navigation*

1. From Philadelphia, or the tide waters of Schuylkill, to Pittſburgh on the Ohio

2. From Philadelphia to Preſqu'Iſle on lake Erie, by the Juniata and Kiſkeminetas &c

3. From Philadelphia to Preſqu'Iſle, by the weſt branch of Suſquehanna, Sinnemahoning and Conewango.

4. From Philadelphia to Preſqu'Iſle, by the weſt branch of Suſquehanna, Sinnemahoning and Toby's creek.

5. From the tide waters of Suſquehanna to Pittſburgh.

6. From the tide waters of Potomack, at George Town, to Pittſburgh

7. From Conedeſſago lake to New York

8. From the middle of the Geneſſee country to New York"

The Pennsylvania Assembly responded liberally to the appeal of Robert Morris's society, and appropriated, April 13, 1791, £22,220 for the improvement of Pennsylvania rivers; the largest appropriations were for the "Suſquehanna, from Wright's ferry to the mouth of Swatara creek, inclu-

sive" £5,250; "For the river Delaware," £3,500; "For the river Schuylkill," £2,500; Conemaugh, £2,800; Allegheny, £150; and Lehigh, £1000.[4] Thus it will be seen that the improvement of rivers was firmly considered to be one of the important undertakings of the day.

[4] *Id.*, pp. 73, 74.

CHAPTER II

THE POTOMAC COMPANY

GEORGE Washington's efforts to promote internal improvement in Virginia and Maryland with special reference to the Middle West have been lightly sketched in other portions of this work.[5] A more or less complete examination into the Potomac Company must be essayed here, for among the improvements of internal waterways in America that of the Potomac urged by Washington meant to the last quarter of the eighteenth century what the building of the Erie Canal meant to the first quarter of the nineteenth.

Having maintained with earnestness for many years that Virginia and Maryland should, through the Potomac River, secure the trade of the rising empire west of the

[5] *Historic Highways of America*, vols. iii, pp. 189-204; xii, pp. 15-30.

Alleghenies, Washington, at the close of the Revolution, gave himself wholly up to this commercial problem. Before peace was declared he left the Continental camp at Newberg and made a long, dangerous tour up the Mohawk Valley, examining carefully the portages to Wood Creek at Rome, and to Lake Otsego at Canajoharie. With that far-sighted shrewdness which, of itself, made him a marked man, he felt that this route which avoided the mountains was the great rival of his Potomac River. Yet he was no narrow partisan. Returning from his tour he wrote Chevalier de Chastellux from Princeton, October 12, 1783: "Prompted by these actual observations, I could not help taking a more extensive view of the vast inland navigation of these United States and could not but be struck with the immense extent and importance of it, and with the goodness of that Providence, which has dealt its favors to us with so profuse a hand. Would to God we may have wisdom enough to improve them. I shall not rest contented, till I have explored the western country, and traversed those lines, or great part of them, which

have given bounds to a new empire."

This clear cry of enthusiasm was from the heart, and within a year Washington carried out his plan of western exploration. Of this journey we had occasion to speak in our sketch of the Old Northwestern Turnpike.[6] In that connection our attention was confined to the portage route between the Cheat and Potomac Rivers. Here his plan for a water avenue from East to West must be emphasized as the first chapter in the history of both the Potomac Company and the Chesapeake and Ohio Canal. This cannot be so well done as by quoting the summary of the *Journal* of this trip, which has never been published.[7] It will be seen that it is the basis and, in part, the first draft of his famous Letter to Harrison written upon his return to Mount Vernon:[8]

"And tho' I was disappointed in one of the objects which induced me to undertake this journey namely to examine into the situation quality and advantages of the Land which I hold upon the Ohio and Great

[6] *Historic Highways of America*, vol. xii, ch. iii.

[7] *Id.*, note 1.

[8] October, 1784.

Kanhawa — and to take measures for rescuing them from the hands of Land Jobbers & Speculators — who I had been informed regardless of my legal & equitable rights, Patents, &c[a]; had enclosed them within other Surveys & were offering them for Sale at Philadelphia and in Europe.— I say notwithstanding this disappointment I am well pleased with my journey, as it has been the means of my obtaining a knowledge of facts — coming at the temper & disposition of the Western Inhabitants — and making reflections thereon, which, otherwise, must have been as wild, incoher[t], or perhaps as foreign from the truth, as the inconsistency, of the reports which I had received even from those to whom most credit seemed due, generally were

" These reflections remain to be summed up.

" The more then the Navigation of Potomack is investigated, & duely considered, the greater the advantages arising from them appear.—

" The South or principal branch of Shannondoah at M[r] Lewis's is, to traverse the river, at least 150 Miles from its Mouth;

all of which, except the rapids between the Bloomery and Keys's ferry, now is, or very easily may be made navigable for inland Craft, and extended 30 Miles higher.—The South Branch of Potomack is already navigated from its Mouth to Fort Pleasant; which, as the Road goes, is 40 computed Miles; & the only difficulty in the way (and that a very trifling one) is just below the latter, where the River is hemmed in by the hills or mountains on each side — From hence, in the opinion of Col° Joseph Neville and others, it may, at the most trifling expense imaginable, be made navigable 50 Miles higher.—

"To say nothing then of the smaller Waters, such as Pattersons Creek, Cacapehen, Opeckon &c[a]; which are more or less Navigable; — and of the branches on the Maryland side, these two alone (that is the South Branch & Shannondoah) would afford water transportation for all that fertile Country between the bleu ridge and the Alligany Mountains; which is immense — but how trifling when viewed upon that immeasurable scale, which is inviting our attention!

"The Ohio River embraces this Commonwealth from its Northern, almost to its Southern limits.— It is now, our western boundary.— & lyes nearly parallel to our exterior, & thickest settled Country.—

"Into this River French Creek, big bever Creek, Muskingham, Hockhocking, Scioto, and the two Miamas (in its upper Region) and many others (in the lower) pour themselves from the westward through one of the most fertile Country's of the Globe; by a long inland navigation; which, in its present state, is passable for Canoes and such other small craft as has, hitherto, been made use of for the Indian trade.—

"French Creek, down w^{ch} I have myself come to Venango, from a lake near its source, is 15 Miles from Prisque Isle on lake Erie; and the Country betw^{n} quite level.— Both big bever creek and Muskingham, communicates very nearly with Cuyahoga; which runs into lake Erie; the portage with the latter (I mean Muskingham) as appears by the Maps, is only one mile; and by many other acc^{ts} very little further; and so level between, that the Indians and Traders, as is affirmed, always drag

their Canoes from one River to the other when they go to War — to hunt,— or trade.— The great Miame, which runs into the Ohio, communicates with a River of the same name, as also with Sandusky, which empty themselves into lake Erie, by short and easy Portages.— And all of these are so many channels through which not only the produce of the New States, contemplated by Congress, but the trade of *all* the lakes, quite to that of the Wood, may be conducted according to my information, and judgment — at least by one of the Routs — thro' a shorter, easier, and less expensive communication than either of those which are now, or have been used with Canada, New Y^k^ or New Orleans.—

" That this may not appear an assertion, or even an opinion unsupported, I will examine matters impartially, and endeavour to state facts.—

" Detroit is a point, thro' which the Trade of the Lakes Huron, & all those above it, must pass, if it centres in any State of the Union; or goes to Canada; unless it should pass by the River Outawais, which disgorges itself into the S^t^

Lawrence at Montreal and which necessity only can compel; as it is from all acc^ts^ longer and of more difficult navigation than the S^t^ Lawrence itself.—

"To do this, the Waters which empty into the Ohio on the East Side, & which communicate nearest and best with those which run into the Atlantic, must also be delineated —

"These are, Monongahela and its branches, viz, Yohiogany & Cheat.— and the little and great Kanhawas; and Greenbrier which emptys into the latter.—

"The first (unfortunately for us) is within the jurisdiction of Pensylvania from its Mouth to the fork of the Cheat, indeed 2 Miles higher — as (which is more to be regretted) the Yohiogany also is, till it crosses the line of Maryland; these Rivers I am persuaded, afford *much* the shortest Routs from the Lakes to the tide water of the Atlantic, but one not under our controul; being subject to a power whose interest is opposed to the extension of their navigation, as it would be the inevitable means of withdrawing from Philadelphia all the trade of that part of its

western territory, which, lyes beyond the Laurel hill.— Though any attempt of that Government to restrain it I am equally well persuaded w^d^ cause a separation of their territory; there being sensible men among them who have it in contemplation at this moment.— but this by the by.—The little Kanhawa, which stands next in order, & by Hutchins's table of distances (between Fort Pit and the Mouth of the River Ohio) is 184½ Miles below the Monongahela, is navigable between 40 and 50 Miles up, to a place called Bullstown.— Thence there is a Portage of 9½ Miles to the West fork of Monongahela — Thence along the same to the Mouth of Cheat River, and up it to the Dunker bottom; from whence a portage may be had to the N° branch of Potomack.

"Next to the little, is the great Kanhawa; which by the above Table is 98½ miles still lower down the Ohio.— This is a fine Navigable river to the Falls; the practicability of opening which, seems to be little understood; but most assuredly ought to be investigated.

"These then are the ways by which the

Produce of that Country; & the peltry and fur trade of the Lakes may be introduced into this State; & into Maryl[d]; which stands upon similar ground.— There are ways, more difficult & expensive indeed by which they can also be carried to Philadelphia — all of which, with the Rout to Albany, & Montreal,— and the distances by Land, and Water, from place to place, as far as can be ascertained by the best Maps now extant — by actual Surveys made since the publication of them — and the information of intelligent persons — will appear as follow — from Detroit — which is a point, as has been observed, as unfavourable for us to compute from (being upon the North Western extremity of the United territory) as any beyond Lake Erie can be.—

viz —

From Detroit to Alexandria

is

To Cuyahoga River . . .	125	Miles
Up the same to the Portage .	60	
Portage to Bever C[k] . .	8	
Down Bever C[k] to the Ohio	85	
Up the Ohio to Fort Pitt .	25	303

The Mouth of Yohiogany .	15	
Falls to Ditto . . .	50	
Portage . . .	1	
Three forks or Turkey foot .	8	
Fort Cumberl[d] or Wills Creek	30	
Alexandria	200	304
Total		607
To Fort Pitt — as above . .		303
The Mouth of Cheat River .	75	
Up it, to the Dunker bottom	25	
North branch of Potomack .	20	
Fort Cumberland . .	40	
Alexandria	200	360
To Alexand[a] by this Rout .		663

*From Detroit to Alexandria avoiding Pensylvania**

To the M[o] of Cuyahoga . .	125	Miles
The carrying place with Muskingham River	54	
Portage . . .	1	
The M[o] of Muskingham .	192	
The little Kanhawa . .	12	384

*The Mouth of Cheat River & 2 Miles up it is in Pensyl[a]

Up the same . . .	40	
Portage to the West Bra	10	
Down Monongahela to Cheat	80	
Up Cheat to the Dunker Bot^{m}	25	
Portage to the N^{o} bra. Potom^{k} . . .	20	
Fort Cumberland . .	40	
Alexandria	200	415
Total by this Rout . .		799

From Detroit to Richmond

To the Mouth of the little Kanhawa as above . . .		384
The Great Kanhawa by Hutchins's Table of Distances	98½	
The Falls of the Kanhawa from information . .	90	
A portage (supp^{e}) .	10	
The Mouth of Green brier & up it to the Portage . .	50	
Portage to James R^{r} .	33	281
Richmond		175
Total . . .		840

Note — This Rout *may be* more incorrect

than either of the foregoing, as I had only the Maps, and vague information for the Portages — and for the distances from the Mouth of the Kanhawa to the Carrying place with Jacksons (that is James) River and the length of that River from the Carrying place to Richmond — the length of the carrying place above is also taken from the Map tho' from Information one would have called it not more than 20 Miles.

From Detroit to Philadelphia is

		Miles
To Presque Isle . . .		245
Portage to Lebeauf . .	15	
Down french Creek to Venango	75	
Along the Ohio to Toby's Creek	25	115
To the head spring of D[o] . .	45	
By a Strait line to the nearest Water of Susque[a] . .	15	
Down the same to the West branch	50	
Fort Augusta at the Fork . .	125	
Mackees (or Mackoneys) C[k] .	12	
Up this	25	
By a strait line to Schuylk[l] .	15	

Reading	32	
Philadelphia	62	381
Total		741

By another Rout

To Fort Pitt as before . . .	303
Up the Ohio to Tobys C^{k} . .	95
Thence to Phil^{a} as above . .	381
Total	779

Note — The distances of places from the Mouth of Tobys Creek to Philad^{a} are taken wholly from a comparative view of Evan's and Sculls Maps — The number, and length of the Portages, are not attempted to be given with greater exactness than these — and for want of more competent Knowledge, they are taken by a strait line between the sources of the different Waters which by the Maps have the nearest communication with each other — consequently, these Routs, if there is any truth in the Maps, must be longer than the given distances — particularly in the Portages, or Land part of the Transportation, because no Road among Mount^{ns} can be strait — or

waters navigable to their fountain heads.

From Detroit to Albany

is

To Fort Erie, at the N° end of Lake Erie	350	
Fort Niagara — 18 Miles of wch is Land transpn . .	30	380
Oswego		175
Fall of Onondaga River .	12	
Portage . . .	1	
Oneida Lake by Water . .	40	
Length of D° to Wood Ck .	18	
Wood Ck very small and Crooked	25	
Portage to Mohawk .	1	97
Down it to the Portage .	60	
Portage . . .	1	
Schenectady	55	
Portage to Albany .	15	131
In all		783
To the City of New York .		160
Total		943

From Detroit to Montreal
is

To Fort Niagara as above . .		380
North end of Lake Ontario .	225	
Oswegatche	60	
Montreal — very rapid . .	110	395
In all		775
To Quebec		180
Total		955

" Admitting the preceding Statement, which as has been observed is given from the best and most authentic Maps and papers in my possession — from information — and partly from observation, to be tolerably just, it would be nugatory to go about to prove that the Country within, and bordering upon the Lakes Erie, Huron, & Michigan would be more convenient when they came to be settled — or that they would embrace with avidity our Markets, if we should remove the obstructions which are at present in the way to them.—

" It may be said, because it has been said, & because there are some examples of it in proof, that the Country of Kentucke,

about the Falls, and even much higher up the Ohio, have carried flour and other articles to New Orleans — but from whence has it proceeded? — Will any one who has ever calculated the difference between Water & Land transportation wonder at this? — especially in an infant settlement where the people are poor and weak handed — and pay more regard to their ease than to loss of time, or any other circumstance?

"Hitherto, the people of the Western Country having had no excitements to Industry, labour very little; — the luxuriancy of the Soil, with very little culture, produces provisions in abundance — these supplies the wants of the encreasing population — and the Spaniards when pressed by want have given high prices for flour — other articles they reject; & at times, (contrary I think to sound policy) shut their ports against them altogether — but let us open a good communication with the Settlements west of us — extend the inland Navigation as far as it can be done with convenience — and shew them by this means, how easy it is to bring the produce

of their Lands to our Markets, and see how astonishingly our exports will be encreased; and these States benefitted in a commercial point of view — w^ch alone is an object of such Magnitude as to claim our closest attention — but when the subject is considered in a political point of view, it appears of much greater importance."

By means of letters, urging these private speculations on public attention, to Governor Harrison and James Madison, the matter of improvement of the Potomac was brought before the Virginia legislature. The consent and coöperation of Maryland being of greatest importance, General Washington, General Gates, and Colonel Blackburn were appointed by the legislature to obtain the concurrent action of the Maryland legislature. On December 20, 1784, the deputation, with the exception of Colonel Blackburn who was detained by illness, reached the Maryland capital. A committee from that state being duly appointed to confer upon the matter in hand, a conclusion was reached as contained in the following report.

"That it is the opinion of this confer-

ence, that the removing the obstructions in the River Potomac, and the making the same capable of navigation from tide-water as far up the north branch of the said river as may be convenient and practicable, will increase the commerce of the commonwealth of Virginia and State of Maryland, and greatly promote the political interests of the United States, by forming a free and easy communication and connection with the people settled on the western waters, already very considerable in their numbers, and rapidly increasing, from the mildness of the climate and the fertility of the soil.

"That it is the opinion of the conference, that the proposal to establish a company for opening the River Potomac, merits the approbation of, and deserves to be patronized by, Virginia and Maryland; and that a similar law ought to be passed by the legislatures of the two governments to promote and encourage so laudable an undertaking."[9] It was further agreed that the commonwealths of Virginia and Mary-

[9] Pickell's *A New Chapter in the Early Life of Washington*, p. 44.

land should each subscribe for fifty shares of stock in the undertaking in order to "encourage individuals to embark in the measure" and as "a substantial proof to our brethren of the western territory of our disposition to connect ourselves with them by the strongest bonds of friendship and mutual interest." How closely Washington's plan was carried out is suggested in the following resolutions: "That it is the opinion of this conference, from the best information they have obtained, that a road, to begin about the mouth of Stony River, may be carried in about twenty or twenty-two miles to the Dunker Bottom or Cheat River; from whence this conference are of opinion, that batteaux navigation may be made, though, perhaps, at considerable expense. That if such navigation cannot be effected by continuing the road about twenty miles further, it would intersect the Monongahela where the navigation is good, and has long been practiced. . . That it is a general opinion, that the navigation in the Potomac may be extended to the most convenient point below, or even above the mouth of Stony River, from

whence to set off a road to Cheat River; and this conference is satisfied that that road, from the nature of the country through which it may pass, wholly through Virginia and Maryland, will be much better than a road can be made at any reasonable expense from Fort Cumberland to the Youghiogheny, which must be carried through Pennsylvania." In a succeeding resolution it is affirmed that the Dunkard Bottom route is more feasible than one from Fort Cumberland to Turkey Foot [Connellsville, Pennsylvania], though the latter road, if improved, would be of great value to many settlers upon and near it. The legislatures of the respective states were asked to appoint examiners to view the doubtful portions of the South Branch (from Cumberland to the mouth of Stony Creek) and the Cheat (from established navigation and Dunkard Bottom) and lay out a road between the heads of practicable navigation on each. It was also suggested that Virginia and Maryland ask permission of Pennsylvania to lay out a road from Cumberland to Turkey Foot on the Youghiogheny.

Accordingly Virginia and Maryland passed laws authorizing the formation of a company for the improvement of the Potomac River. "I have now the pleasure," wrote Washington to Richard Henry Lee, February 8, 1785, "to inform you that the Assemblies of Virginia and Maryland have enacted laws, of which the inclosed is a copy.[10] They are exactly similar in both States. At the same time, and at the joint and equal expense of the two governments, the sum of six thousand six hundred and sixty-six dollars and two thirds is voted for opening and keeping in repair a road from the highest practicable navigation of this river to that of the River Cheat, or Monongahela, as commissioners, who are appointed to survey and lay out the same, shall find most convenient and beneficial to the western settlers." Washington believed fully that the project was to be a great success for stockholders; he estimated that they would receive twenty per cent from investments in Potomac improvement in a few years.[11]

[10] See appendix A, p. 219.

[11] E. Watson's *History of the . . Western Canals in the State of New York*, p. 87.

The subscription books of the new company having been, as the law required, opened on February 8, 1785, a summons was issued for a meeting of the subscribers at Alexandria, Virginia, on May 17. The meeting having been called to order, Daniel Carrol was elected chairman and Charles Lee, clerk.[12] The books being opened, it was found that Virginia had subscribed for two hundred and sixty-six shares, the Richmond book showing one hundred shares, the Alexandria book, one hundred and thirty-five, and the Winchester book thirty-one; Maryland had subscribed for one hundred and thirty-seven shares, divided as follows: Annapolis, seventy-three; Georgetown, forty-two; Frederick, twenty-two. The total shares were therefore four hundred and three, giving the company a capital of £40,300. President and four directors of the Potomac Company, as it was known, being ballotted for, George Washington was elected president, and Thomas Johnson, Thomas Sim

[12] All particulars concerning the inner history of the Potomac Company are from Pickell's *A New Chapter in the Early Life of Washington*; the author had access to all documents in the case.

Lee, John Fitzgerald, and George Gilpin were elected directors.

The services of Mr. James Rumsey, the mechanician, being secured, as general manager of improvements, the president, directors and manager made an examination of the river with a view to planning the work to be done. Three important impediments to navigation were immediately attacked; these were known as "Great Falls," "Seneca Falls" and "Shenandoah Falls." The "Great Falls" of these early days are the rapids and falls above Washington which bear the same name today. Seneca Falls were early known as "Sinegar Falls," in the Revolutionary era on Fry and Jefferson's map. They lie just above Great Falls, near the mouth of Seneca Creek. Shenandoah Falls were at the present Harper's Ferry at the mouth of the river of the same name. In the summer of 1785 parties of workmen were blasting and removing the boulders at these two points until the fall rains put an end to the work. Attention was then given to excavating a canal around Great Falls, concerning which there was a great

diversity of opinion, especially as to its lower termination.

The work of this first season quickly brought out the fact that it was a great task which the company had undertaken. This may have been the reason why payment on shares had been so slow; already the company's treasury was almost depleted. "The original motive which actuated the stockholders seemed for some cause to have abated, and it required the *master spirit* of the enterprise to be exerted, to prevent at this important and critical juncture, a total abandonment of the project. . . . The State of Maryland had failed to pay the sums due on the shares it held, and a large number of individual stockholders had also neglected to meet their instalments. . . . The treasury was no longer able to liquidate the claims of individuals against it, and a total prostration of its credit seemed inevitable unless soon relieved." [13]

Strenuous efforts on the part of the officers brought desirable results and with

[13] *A New Chapter in the Early Life of Washington*, pp. 83–84.

the opening of the season of 1786 work on the improvements was being pushed with earnestness. At the annual meeting, August 7, the same officers were re-elected and the treasurer's books were examined and found in good order. The president and directors were allowed thirty shillings in Virginia currency for the time they had spent in the business of the company. It was determined that the directors should visit in person the river from Great Falls upward, to inspect the ground, choose a channel, and take such action as, in their judgment, the case demanded. This was done, the trip covering four days; and as a result the legislatures of the states were requested to extend the time limit from three years to November 17, 1790. In this the legislatures acquiesced.[14]

During the new fiscal year additional difficulties arose to unite with those of unpropitious weather and financial distress to delay and discourage. The appointment of Mr. Richardson Stewart as "principal Assistant Superintendent" resulted in the resignation of Mr. Rumsey, who

[14] Hening's *Statutes at Large*, vol. xii, ch. cxiv.

preferred charges of incompetency against Mr. Stewart.[15] The directors replied to the charges in the order they were made, finding Mr. Stewart guilty of only one, namely of "causing another servant to burn Michael Barnet with a hot iron without reason;" the directors declared, without fear or favor, "that in this Mr. Stewart acted with an impropriety the Board disapproves of"![16] A difficulty had arisen, early in the work, in securing workmen and in keeping them in submission to law and order when once obtained. In the fall of 1785 half the laborers were dismissed from the company's service. The secretary of the company now, and at numerous times thereafter, was in correspondence with parties in Baltimore (Messrs. Stewart and Plunket) and in Philadelphia (Mr. John Maxwell Nesbit) who might secure workmen for the Potomac improvements.[17] Furnishing the workmen with liquors also seems to have been a troublesome item. In November, 1785, a contract was made

[15] *A New Chapter in the Early Life of Washington*, pp. 94–95.

[16] *Id.*, p. 98.

[17] *Id.*, p. 78.

with William Lyles and Company to furnish "what rum might be necessary for the use of the hands employed by the company on the river" at the rate of two shillings per gallon.[18] For the winter 1786–7 the manager was directed to retain such a force as was deemed necessary at a monthly wage (from November 12 to April 12) of thirty-two shillings for common laborers, and forty shillings for "prime hands, with the usual ration except spirits, and with such reasonable allowance of spirits as the manager may from time to time think proper. . . ."[19]

At a meeting of the directors January 3, 1787, the financial crisis was faced sternly. The funds were quite exhausted and work would have to be suspended unless the delinquent stockholders immediately advanced the assessment long overdue. It was determined to warn delinquents that unless advances were made within the next five months the legal recourse of reselling subscribed stock at auction would be

[18] *Id.*, p. 83. Cf. *Historic Highways of America*, vol. v, p. 142.

[19] Pickell, *ut supra*, p. 100.

resorted to. A few responded but the "large majority continued delinquent." In accordance with the threat of the directors, it was announced in public advertisements that forty-six shares of stock in the Potomac Company would be offered at auction at the court house at Alexandria on Monday, May 14, and nine shares at Shuter's tavern in Georgetown on May 21. The attitude of the general public toward the Potomac improvement scheme was revealed clearly at these auctions — for at neither Alexandria nor Georgetown was a single bid made when these shares were offered for sale, though numbers of people had gathered out of interest or curiosity.[20]

A meeting of the board of directors was called at the mouth of the Shenandoah (Harper's Ferry) June 2, 1788, at which it was determined to cut down expenses "without jeopardizing the progress of the work." It was now the opinion of the board that by the ensuing season loaded boats could descend from the pool or "reach" above Seneca Falls to tide-water; this meant that a channel in Seneca Falls

[20] *Id.*, p. 104.

had been opened and the canal about Great Falls completed. It was given out that in July the entire force of workmen would be concentrated at Shenandoah Falls to hasten the opening of a channel at that point. At the annual meeting in Alexandria, August 4, it was reported that high water had delayed operations but that by November 1, the channel would be open from tide-water to Cumberland. Since the last meeting of the company £2,990 sterling had been paid into the treasury, making a total of paid up assessments to date of £13,719 18s 8d.

The election of a president for the year ensuing was postponed, as it was plain that Washington was soon to be named President of something of more note than a Potomac Company. In May 1787 he had been elected president of the National Convention at Philadelphia, and it was clear that he would be first choice as executive of the new republic. He was elected President of the United States for the term beginning March 4, 1789. From the day of his withdrawal from the Potomac Company its affairs languished — proving

clearly that but for Washington's name and energy the organization would probably never have existed.

On ten different occasions did the legislatures of Virginia and Maryland extend the time demanded by law for the completion of the Potomac improvements, between 1786 and 1820. By this time the promotion of the Erie Canal aroused the proprietors to inquire into the feasibility of cutting a canal from the Potomac to the Ohio River. During thirty-six years $729,380 had been spent in the attempt to improve the Potomac and little had been accomplished; an inquiry into the affairs of the Potomac Company by a state commission, appointed in 1821, and reporting July, 1822, resulted in the following report: " . . that the affairs of the Potomac Company have failed to comply with the terms and conditions of the charter; that there was no reasonable ground to expect that they would be able to effect the objects of their incorporation; that they have not only expended their capital stock and the tolls received, with the exception of a small dividend of five dollars and fifty

cents on each share declared in 1802, but had incurred a heavy debt which their resources would never enable them to discharge; that the floods and freshets nevertheless gave the only navigation that was enjoyed; that the whole time when produce and goods could be stream bourne on the Potomac in the course of an entire year, did not exceed forty-five days; that it would be imprudent and inexpedient to give further aid to the Potomac Company." The committee advised a more effectual method of inland navigation and suggested the plan of a canal through the region in which the Potomac Company had proposed to operate, to be connected with Baltimore, the metropolis of the Chesapeake, by means of a lateral canal, from some point along the Potomac Valley.

CHAPTER III

THE CHESAPEAKE AND OHIO CANAL AND ITS RIVAL

IT is exceedingly interesting to note that the old plan of Washington's, by which the Middle West and Northwest were to be held in fee by those who controlled the Potomac, was as dominant now in 1823 as it was, within a limited circle, in 1784. In fact this is what the Potomac Company, the Potomac Canal Company, the Chesapeake and Ohio Canal Company and the Baltimore and Ohio Railway Company have all stood for — this commercial control of the trans-Allegheny empire. Our general plan demands a full examination of this phase of our subject at the time at which we now have arrived — 1823.

In view of the canal project now on the tapis the Potomac Company adopted a resolution on February 3, 1823, signifying their willingness (!) to surrender their charter

on liberal terms to a new company for the prosecution of the new plan of communication. A bill was introduced, in accordance with the same plan in the Maryland legislature, to incorporate a joint stock company to be known as "The Potomac Canal Company." It was estimated that the proposed work of cutting a canal, from Potomac tide-water (Washington, D. C.) up the valley, across the mountains to a branch of the Ohio, and down the same, at a million and a half dollars, of which Virginia, Maryland, and the District of Columbia were each to subscribe one-third."[21]

A commission was appointed by Virginia and Maryland to examine the old route across the Alleghenies marked out by Washington with a view to the possibility of constructing a canal from the head of the Potomac to one of the heads of the Ohio. James Schriver made an examination of the Alleghenies with reference to the new canal in the summer of 1823, and the result was given to the public in the form of a report entitled: *An Account of Surveys and Examinations with Remarks and Documents*

[21] Scharf's, *History of Maryland*, vol. iii, p. 156.

relative to the projected Chesapeake and Ohio, and Ohio and Lake Erie Canals.[22] Though we find Mr. Schriver a United States Associate Civil Engineer in 1826,[23] he seems to have made his explorations "to satisfy himself and a few friends."[24] Since the day of Washington's explorations in 1784 it was generally understood that the most practicable route for a road or canal from the Potomac to an Ohio tributary would follow the portage route outlined by Washington from the Potomac at the mouth of Savage River to the Cheat River. But the emphasis given by Washington to this portage was not based wholly on utilitarian motives. He desired his route to keep within the bounds of Virginia and Maryland — the possessors of the Potomac — for any more northerly course would carry the route into Pennsylvania. Washington, however, was searching for waterways which could be made navigable; Schriver, a generation later, sought only for streams which could furnish sufficient water for a

[22] Baltimore, 1824.

[23] *House Docs. no. 10, 19th Cong., 2d. Sess.*, p. 9.

[24] *An Account of Surveys and Examinations*, p. 3.

canal. As a result, Schriver was satisfied with the head of the Youghiogheny which, though it could never be made navigable, yet contained plenty of water to fill a canal. Schriver's proposed route, therefore, left the Potomac at the mouth of Savage River, ascended that stream and its tributary, Crabtree Creek. Reaching Hinch's Spring by means of a tunnel,[25] the canal would follow the North Fork of Deep Creek and Deep Creek itself to the Youghiogheny. Descending the Youghiogheny and Monongahela, the Ohio River would be reached at Pittsburg. The vital question was thought to be whether there was a sufficient current of water to supply the summit level of the canal at the tunnel under Little Backbone Mountain.

The bill to incorporate the Potomac Canal Company, however, failed to pass the

[25] The probable success of a tunnel of a mile and a half in length was not doubted at this time. The Trent-Mersey Canal in England had five tunnels in ninety-three miles, and one (at Harecastle) was more than a mile and a half long, and over two hundred feet beneath the surface of the earth. Its cost was £31 10s 8d per yard. The Chesterfield canal had a tunnel at Hartshill three thousand yards long.—*An Account of Surveys and Examinations*, p. 57, *note*.

Maryland legislature. This brings us at once face to face with one of the most interesting phases of the subject — the position and commanding influence of Baltimore in the commercial world at that day. "The progress of the [Potomac Canal Company] bill," writes the Maryland historian Scharf, "caused much excitement in Baltimore. The people of that city, notwithstanding they were in favor of internal improvements, and had freely subscribed for the construction of roads, bridges, etc., were unanimously opposed to this bill, because it called for an appropriation of the funds or credit of the State (one-third of which they would be compelled to pay) to an object that would be rather an injury than a benefit to the trade of the city. Though they had but a fortieth part of the power of legislation in the House of Delegates, they paid one-third part of the taxes of the State, and as the funds of the State were not sufficient to meet the ordinary expenses of about $30,000 a year, the financial burden bore with great pressure upon them. Besides, they especially objected to the Potomac canal, because, under

the bill in question, the canal was to terminate as at present, in Georgetown, and the privilege was virtually denied them of tapping it so as to connect it by a canal with Baltimore, if they so desired; besides, the State was asked to cede to the company all its rights to the waters of the river [Potomac], thus virtually preventing the future connection of the canal with the City of Baltimore. To produce concert of action in the next session of the Maryland and Virginia legislatures, the friends of the measure began to hold meetings in various parts of the country. . . . [These meetings] resulted in the assembling of a convention in the city of Washington, on Thursday, the 6th day of November, 1823, with delegates from Maryland, Virginia, Pennsylvania, and District of Columbia."[26]

The business of the convention, of which Congressman Joseph Kent was chosen chairman, was to advocate the enlargement of the plan of the Potomac Canal Company so that it would include Baltimore as its eastern terminus, by means of a lateral canal or an extension of the main canal

[26] *History of Maryland*, vol. iii, pp. 156–157.

from its terminus at Georgetown. "Whereas, a connection of the Atlantic and Western waters, by a canal," read the introduction to the resolutions adopted, "leading from the seat of the general government to the river Ohio, regarded as a local object, is one of the highest importance to the states immediately interested therein, and, considered in a national view, is of inestimable consequence to the future union, security, and happiness of the United States:

"*Resolved, unanimously*, That it is expedient to substitute, for the present defective navigation of the Potomac river above tide water, a navigable canal, by Cumberland to the mouth of Savage Creek, at the eastern base of the Alleghany, and to extend such canal, as soon thereafter as practicable, to the highest constant steamboat navigation of the Monongahela or Ohio river."[27] Another resolution outlined a plan of enlargement of the Potomac Canal Company by the appointment of committees "each consisting of five delegates, to prepare and present, in behalf of this

[27] *Niles Register*, vol. xxv, p. 173.

assembly, and in co-operation with the central committee, hereinafter provided, suitable memorials to the congress of the United States, and the legislatures of the several states before named [Virginia, Maryland, Pennsylvania, and the District of Columbia], requesting their concurrence in the incorporation of such a company and their co-operation, if necessary, in the subscription of funds for the completion of the said canal: And whereas, by an act of the general assembly of Virginia, which passed the 22d February, 1823, entitled, 'an act incorporating the Potomac canal company,' the assent of that state, so far as the limits of her territory render it necessary, is already given to this *object*, and for *its* enlargement to the extent required by the preceding resolution, the said act appears to furnish, with proper amendments, a sufficient basis: *Be it, therefore, resolved* That it will be expedient to accept the same as a charter for the proposed company, with the following modifications, viz: That in reference to its enlarged purpose, the name be changed to the 'Chesapeake and Ohio Canal.'" These

resolutions[28] are practically embodied in the act incorporating the Chesapeake and Ohio Canal.[29]

The two hundred delegates concluded their convocation by a banquet at Brown's Hotel, Washington, on Saturday evening. Certain of the "spontaneous sentiments" were: By the Secretary of State, John Quincy Adams, "the first right and the first duty of nations — self-dependence and self-improvement;" by the Secretary of War John C. Calhoun, "Canal navigation between the Atlantic and the western waters, essentially connected with the commerce, the defence, and the union of the states — may it receive the patronage and support of the nation;" by C. F. Mercer, soon to be the first president of the Chesapeake and Ohio Canal, "the eastern and western country — whom the Author of Nature has joined together, may no man put asunder;" by Mr. James Schriver, pioneer surveyor on the upper Potomac, "The Chesapeake and Ohio; they have 'passed meeting'[30]—

[28] *Id.*, pp. 173–175.

[29] See note 33.

[30] "Passed meeting," a practice among the Friends previous to the marriage ceremony.

may their marriage be speedily consummated." A toast which tells of Clay's presidential ambitions was proposed by B. S. Forrest of Maryland after the speaker's withdrawal from the board in the following technical phrase: "Henry Clay, qualified to pass the summit level; neither giddy in ascending, nor dismayed in descending!" The members of the important Central Committee were Charles F. Mercer, John Mason, Walter Jones, Thomas Swann, John McLean, William H. Fitzhugh, H. L. Opie, Alfred H. Powell, P. C. Pendleton, A. Fenwick, John Lee, Frisby Tilghman, and Robert W. Bowie. The committee to memorialize Congress was as follows: Walter Jones, John Mason, George Washington Park Custis, Robert I. Taylor, S. H. Smith.[31]

That George Washington's original plan of connecting the Potomac with the Great Lakes was still dominant, a resolution of this convention proves; the Virginians and Marylanders were bound to control the commerce of the Lakes even with the Erie

[31] *National Intelligencer; Niles Register*, vol. xxv, p. 175.

Canal as a rival. Their resolution read: "*And be it further resolved*, That a committee of five delegates be appointed to prepare, and cause to be presented, in behalf of this convention, a suitable memorial to the state of Ohio, soliciting the co-operation of that state in the completion of the Chesapeake and Ohio canal, and its ultimate connexion with the navigation of Lake Erie; and that, for the latter purpose, the memorial shall respectfully suggest the expediency of causing the country, between the northernmost bend of the river Ohio, and the southern shore of Lake Erie, together with the waters of Great Beaver and Cayuga [Cuyahoga] creeks, and all other intervening waters near the said route, to be carefully surveyed, with the view of ascertaining the practicability and probable cost of a canal, which, fed by the latter, shall connect the former."[32] Mr. Schriver, in his volume quoted, gives much attention to this western extension of the Chesapeake and Ohio Canal. "The proposed *Ohio and Lake Erie Canal*," he affirms, "is intimately blended

[32] *Id.*, pp. 174–175.

with that of the *Chesapeake and Ohio*. In the opinion of many, it is embraced and constitutes only a part of the same grand design; but whether it be considered in connexion with it, or independently, it is confessedly a project of vast public importance, involving considerations of great national and local concern."

The Washington canal convention brought forth much fruit; its demands were eminently reasonable; the plan of operations proposed was logical, and fair to all concerned. The Potomac Canal Company could not face the future successfully without the friendship of Maryland and Maryland's commercial metropolis. The legislature of Virginia passed an act incorporating the Chesapeake and Ohio Canal Company, January 27, 1824.[33] Upon being slightly amended, it was passed by the Maryland legislature January 31, 1825. A perusal of the act will show that the new company was capitalized at $6,000,000, divided into 60,000 shares of $100 each. Certificates of stock in the old Potomac Company, or debts of the same, were to be

[33] See appendix B, p. 225.

accepted at par or nominal value for certificates in the new company, under certain conditions and limitations. The canal was divided into Eastern and Western sections, the mouth of the Savage River being the division point;[34] if the company did not begin work in two years, or if one hundred miles were not completed in full in five years, the charter should become null and void. If the western section was not begun within two years after the time allowed for the completion of the eastern section, or was not completed in six years, the right and title of the company "in said western section, shall cease and determine." It will be noted that failure to complete the western section did not affect the company's right to the eastern section. The annual dividends were not to exceed fifteen per cent, and unless one-fourth of the capital should be subscribed all subscriptions were to be void.

In December 1823 President Monroe

[34] While the law divided the canal into only two sections, eastern and western, the engineers divided it into three, eastern, middle, and western. The two former met at Cumberland, and the latter began at the mouth of Casselman's River.

presented the internal improvement proposed by the Chesapeake and Ohio Canal Company to Congress, and in April 1824 an appropriation of $30,000 was made to procure surveys and estimates in order to prove the feasibility of the plan. In May the President appointed Brigadier-general Simon Bernard and Lieutenant-colonel Totten and Civil Engineer John L. Sullivan of Massachusetts as a board to outline the most suitable route for a canal from Potomac tide-water to the Ohio River. Their report was made October 23, 1826.[35] The four memoirs of the report include a survey of the Potomac Valley from tide-water to Cumberland, Maryland, by Lieutenant-colonel J. J. Abert; a descriptive statement with reference to the eastern section of the summit level between the Potomac and the heads of the Ohio by Captain William G. McNeill; a descriptive account of Casselman's River or the Somerset route, also by Captain McNeill; a review of other routes by James Schriver.

In the eastern section the canal was planned on the Maryland side of the

[35] *State Papers 19th Cong., 2d Sess., Doc. no. 10.*

Potomac River, because the obstacles on that bank were of less magnitude than those on the opposite Virginia shore, the exposure was more favorable, an earlier navigation could be secured there in the spring, and a later navigation in the fall, and no aqueduct would be required at Cumberland, as Wills Creek enters the Potomac at that point from the Maryland shore. Moreover the water supply from Maryland to the Potomac exceeded that of Virginia, the rivers of the latter sending 190 cubic feet of water per second into the Potomac, and the former 267.35 cubic feet. While perhaps not fully accurate, these figures approximated the truth.

The length of the eastern section was placed at one hundred and eighty-six miles, and it was divided into eleven subdivisions marked by the following points beginning at Cumberland: South Branch of the Potomac, Great Cacapan, Licking Creek, Great Conococheague, Antietam Creek, one mile below Harper's Ferry, Monocacy River, Seneca Creek, Great Falls, Little Falls, and Georgetown. The old canal of the Potomac Company was to be used by

the new canal as far as possible. A summary of the eastern section reads:

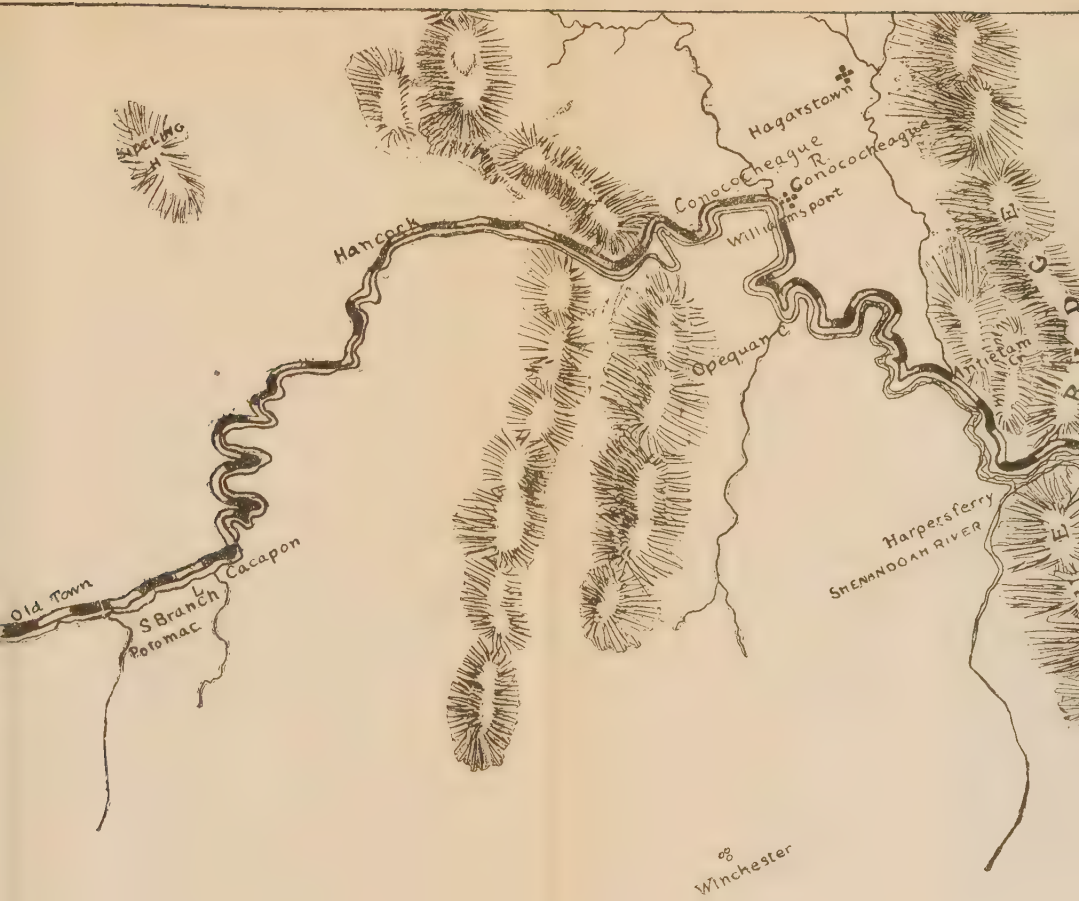
Distance (miles)	185⅝
Descent (feet)	578
Number of locks	74
Estimated cost	$8,177,081.05

In seeking a route across the towering ridges between the Potomac and heads of the Ohio, the course first suggested by Washington and studied by commissioners since his day was discarded by the board of surveyors which now planned the actual course of the canal. The Chesapeake and Ohio Canal Company being incorporated in Pennsylvania, it was now no object to keep the highway within the territories of Virginia and Maryland alone. Upon exploration, it was found that a route up Wills Creek from the Potomac at Cumberland, Maryland, and across to Casselman's River, a branch of the Youghiogheny, was a more favorable route than that by way of Savage River and Deep Creek to the Youghiogheny. The question was determined by the supply of water at summit level. The reservoirs in the Deep Creek plan would have to be twelve miles in

Allegheny R
Ohio River
PITTSBURG
Monongahela R
McKeesport
Sewickly C
Jacobs C
Pigeon C
Connels ville
Pike Run C
Big Redstone C
UNION
Browns Run
Georges C
Cheat River
Monongahela River

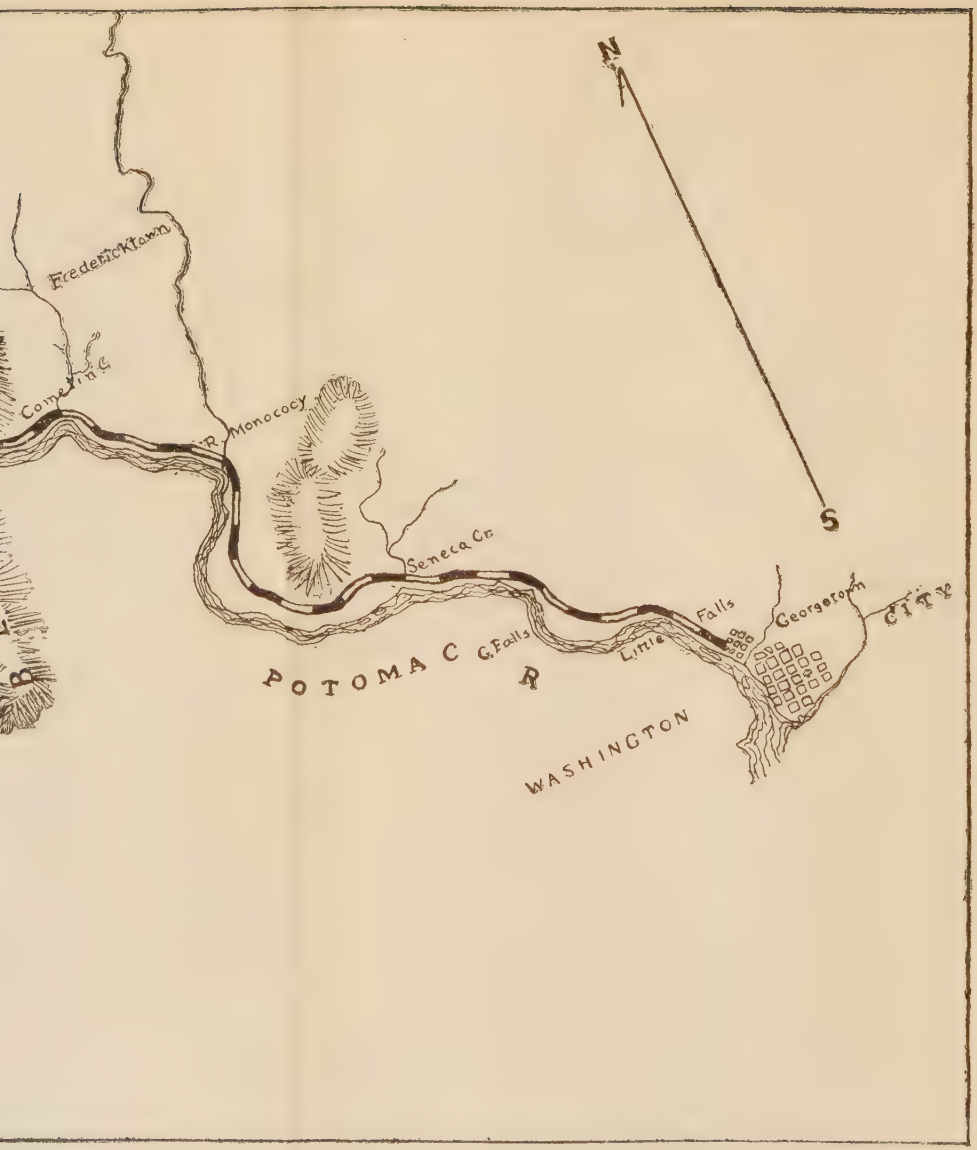
MAP OF THE C

[*The heavy line from Georgetown to Cumberland marks the portion of the canal that*



APEAKE AND OHIO CANAL

lt; the faint line from Cumberland to Pittsburg indicates the portion that was surveyed but not built]


N
S
Fredericktown
Monocacy R
Seneca Cr
Falls
Georgetown
CITY
G. Falls
Little
POTOMA C R
WASHINGTON

length, while those by the more northerly route would be but three and one-half miles in length. A saving of six million cubic yards of water by evaporation in the Casselman's route made that way far more advantageous. The lockage on the Deep Creek route was eight hundred and seventy-three feet more than by the Casselman route; on the other hand this was equalized by the fact that the tunnel on the latter route was to be four miles and eighty yards long, while the Dewickman tunnel on the Deep Creek route was only one mile and five hundred and sixty-eight yards long. With all factors taken into account, it was estimated that the Deep Creek route would cost $2,861,288.90, and the Casselman's or Flaugherty Creek route $2,324,315.37, or more than a half million dollars less than the Deep Creek route.

This Middle Section, therefore, extended from Cumberland, or the western extremity of the Eastern Section, to the mouth of Casselman's River in the Youghiogheny, the "Turkey Foot" of pioneer days.[36] Its length was seventy miles and one thousand

[36] See *Historic Highways of America*, vol. iii, p. 133.

and ten yards. The lockage was nineteen hundred and sixty-one feet and the summit was to be crossed by a tunnel four miles and eighty yards long, dug at eight hundred and fifty-six feet below the summit of the ridge. The Middle Section was divided into an eastern and a western portion. The former had two subdivisions; the first, descending from the summit, was fifteen miles in length, with a descent of one thousand and sixteen feet, from the eastern end of the summit level to the mouth of Little Wills Creek; the second subdivision, nearly fourteen miles long, and with a descent three hundred and nine feet, extended from Little Wills Creek to the western end of the Eastern Section, below Cumberland. The western portion of the Middle Section was, likewise, divided into two subdivisions; the first, sixteen miles long with a drop of two hundred and sixteen feet, ran from the western end of the summit level to the mouth of Middle Fork Creek; the second, nineteen miles long, with a descent of four hundred and twenty feet, ran from there to the mouth of Casselman's. The summit level was

five miles and one thousand two hundred and eighty yards long, to be crossed by a tunnel four miles and eighty yards long and a deep cut the remaining distance.

The summary of the Middle Section reads:

	Distance		*Ascent and descent*	*Number of locks*	*Estimated cost*
	miles	yds.			
Eastern Portion	29	240	1325	166	$3,856,623.60
Summit Level	5	1280			3,471,967 01
Western Portion	35	1250	636	80	2,699,532.25
	70	1010	1961	246	10,028,122.86

The Western Section began four hundred and forty yards below the junction of Casselman's River with the Youghiogheny and extended to Pittsburg on the Ohio River. The canal was planned on the right bank of the Youghiogheny and Monongahela Rivers, and was divided into four subdivisions:

Termini	*Miles*	*Descent (feet)*
Western end of Middle Section to Connellsville	27½	432
Connellsville to Sewickly Creek	27¼	144
Sewickly Creek to mouth of Youghiogheny	16½	8
Mouth of Youghiogheny to Pittsburg	14	35

The summary for the Western Section was:

Distance (miles)	85¼
Descent (feet)	619
Number of locks	78
Estimated cost	$4,170,223.78

The total estimate of the board, therefore, for the entire work was as follows:

	Distance		*Ascent and descent*	*Number of locks*	*Estimated cost*
	miles.	*yds.*			
Eastern Section	185	1078	578	74	$8,177,081.05
Middle Section	70	1010	1961	246	10,028.122.86
Western Section	85	348	619	78	4,170,223.78
Totals	341	676	3158	398	$22,375,427.69[37]

Under the head of "General Considerations"[38] the board treated minutely the proposition presented by the acts incorporating the Chesapeake and Ohio Canal Company, and the treatise is one of the most interesting studies of early commerce between the East and the West. The great population and area concerned on both sides of the Alleghenies, the increased value of real estate which would follow the

[37] *Id.*, p. 62.

[38] *Id.*, pp. 65–80.

building of the canal, the articles of import and export which would pass and repass over the great highway, the probable revenue which would be derived from tolls, the enhanced value, commercially, of a canal to the Ohio River whenever the Ohio was in turn connected with Lake Erie, and the strategic military position and value of the canal on the shortest route from Atlantic tide-water to the Ohio River and the Great Lakes by way of the national capital, are points considered at some length.

This report of the board, naming over twenty millions as the cost of the canal was an overwhelming and disappointing surprise. The capital of the Chesapeake and Ohio Canal Company was, as we have seen, only six million — in itself a tremendous sum in that day. The blow fell heavily on Baltimore; while the building of the canal in the Potomac Valley was entirely reasonable, it was the larger interests of the great scheme that had a special appeal to the capitalists of the Maryland metropolis. As a highway between tide-

water and the Ohio Basin the scheme had been greatly favored by them. Already, on March 6, 1825, the Maryland legislature had provided for the formation of what was known as the "Maryland Canal Company" with a capital of half a million dollars, which should bind the Chesapeake and Ohio Canal with the city of Baltimore. In any lesser sense — as merely a canal in the Potomac Valley — the Chesapeake and Ohio Canal was of far less interest to Baltimoreans than an improvement of communications, for instance, to the rich Susquehanna country. And the moment it was known that merely the Middle Section, of seventy miles, of the Chesapeake and Ohio Canal was to cost nearly twice the entire proposed capitalization of the company, the idea of a continental canal to the West through the Alleghenies was deemed impracticable at Baltimore. A new estimate of the expense was undertaken by James Geddes and Nathan S. Roberts, who cut down the figures named by General Bernard one half.[39] Those greatly interested in the advancement of the scheme hailed

[39] Scharf's *History of Maryland*, vol. iii, p. 165.

this announcement with delight, but the more conservative relied upon the estimates of the national board as being the most reliable.

The actual resulting effects of the discouraging report of the board concerning the cost of this enterprise were so far-reaching, that it is altogether proper to pause a moment here and consider the position and influence of the city of Baltimore, and note what the failure of the canal scheme meant to her. As a commercial metropolis Baltimore's reputation was very great, and second only to that of Philadelphia. Not only was it a great seaboard market, but throughout the preceding half century it had been one of the great markets for western produce. Its position was unique; although a seaport it was many miles nearer the Ohio Valley than any rival. In laying out possible landward routes from the Ohio River to the seaboard for the Cumberland National Road, the commissioners found that the route to Baltimore was thirty-nine miles shorter than to Philadelphia, and forty-two miles shorter than to Richmond. The distance from the sea-

port of Baltimore to Brownsville, Pennsylvania, on the Monongahela, where navigation by boat was almost always possible, was only two hundred and eighteen miles. Thus Baltimore was the natural eastern metropolis for the trade of the West. Moreover, Baltimore had, up to date, taken perhaps all advantages of her situation, and had grown rich in consequence; the building of the Cumberland Road had been of great benefit, for Cumberland was but the half-way house to Baltimore. Baltimore and Maryland had improved their opportunities by building many miles of fine roads, really extending the Cumberland Road to Baltimore and tide-water.

Baltimore's commercial prestige was secure so far as land ways were concerned. New measures calling for water ways now on foot, made popular by the great success of the Erie Canal, promised to overturn all previous considerations. The coach and freighter, it seemed, were now to be replaced by the easy-gliding canal-boat. Baltimore had been the metropolis for western trade during the reign of the freighter. Must she resign her place upon

the advent of the canal-boat? This was the question which was being agitated throughout the years of the Potomac chimera; the failure of that scheme again restored the confidence of the Baltimoreans. But the revival of the plan under the new arrangement of a canal from tide-water to the Ohio Basin again created alarm. The position of the Marylanders in this extremity is well indicated by one of Niles's editorials as follows: "The 'National Intelligencer' of Tuesday last [November, 1823], in an article signed 'Multum in Parvo,' contains a very illiberal attack on the people of Baltimore, because of their supposed opposition to the Potomac canal. It accuses us of 'avarice and ambition' — of being 'selfish' — as 'jealous' of Washington, and as preparing to oppose a restoration of their 'political rights' to the people of the District of Columbia! It also puts it down as *impossible* to conduct an arm of this canal to our city. . . *Baltimore* 'avaricious and ambitious!' We refer to the support afforded by loans, and the great disbursements made on our own responsibility, during the late war; the splen-

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did public roads with which we have intersected the country, and the beautiful edifices, fountains, &c. that we have built in our city, in proof of our 'avarice' — and direct public attention to North Point and Fort McHenry, for evidences of our 'ambition:' and, as to being 'selfish' or 'jealous,' these are nearly the last things that should be said about Baltimore; . . So far as my information goes, . . the citizens of Baltimore are not *opposed* to the Potomac canal: but how is it possible to expect their *support* for it when the following facts are considered:

"1. We have expended a million of dollars on certain public roads, to obtain that trade which the canal is designed to deprive us of.

"2. Yet, and notwithstanding we are to suffer this loss of capital and trade, if the canal should be made as heretofore proposed, we must pay *one third* of Maryland's share of the expense of making it: that is to say, 10,000 dollars a year will *be added* to the amount of our taxes, though such is our present condition that the usual taxes can hardly be collected, through the

depreciation of property and want of business.

"3. . . As well might we accuse the people of the District of Columbia of *selfishness*, because they will not help us to make a canal to the Susquehannah, as they can censure us for preferring that canal to one on the Potomac. We are willing that the Potomac canal should be made — but not at our cost; until, at least, we have fully ascertained what can be done in respect to a favorite measure of the same nature. But we must be permitted to doubt whether the people of the district would feel very zealous about the navigation of the Potomac, provided it was ascertained as practicable, and *conditioned*, that an arm of the canal should be extended to Baltimore, though the last is so much nearer the sea than Washington, &c." [40]

As noted, Maryland refused to pass the bill incorporating the Potomac Canal Company, because of the objections, largely, of Baltimoreans. To the enlarged plan embraced under the name of Chesapeake and Ohio Canal Company, assent was given,

[40] *Niles Register*, vol. xxv, p. 145.

under the impression that full connection with the West by canal was possible, and that Baltimore was to become, virtually, the eastern terminus. The report of the national board as to the enormous expense of the canal precluded the thought of the building of the Middle and Western Sections, and, consequently, deprived it of its genuinely national character. The discouragements discovered by the Maryland Canal Company in their attempt to find a satisfactory location for a canal route from the Potomac to Baltimore,[41] also had its effect in strengthening the opinion of Baltimore capitalists that Baltimore could never hold the trade of the West by water routes as for half a century she had held it by land routes. New York and Philadelphia were fast surpassing her, and, by means of the Pennsylvania and Erie Canals, seemed in a fair way to secure the trade of the West which once had been hers. In the editorial already quoted the discouraging state of trade in Baltimore is hinted at.

Philip E. Thomas, president of the Mechanic's Bank of Baltimore and a commis-

[41] Scharf's *History of Maryland*, vol. iii, p. 164.

sioner for Maryland for the Chesapeake and Ohio Canal Company, resigned his office upon reviewing the report of General Barnard, and, calling into his counsels George Brown, the two in private faced the situation in which Baltimore was placed. Without hope of taking any advantage of the Potomac to gain the trade with the West, with New York and Pennsylvania fast outstripping Baltimore in trade and population and both pushing canals to the West, the outlook for Baltimore seemed unpromising indeed. These two energetic and daring men, in comparatively a moment's time, changed the whole complexion of affairs, and brought not only the eyes of the world to Baltimore but in very fact brought back to her the commercial prestige, so far as western trade was concerned, which she had enjoyed in the day of the stagecoach and freighter. On the twelfth of February, 1827, the plans of Thomas and Brown had gone so far that a meeting at the home of Mr. Thomas of over a score of Baltimore merchants and promoters was called "to take into consideration the best means of restoring to

the City of Baltimore that portion of the Western Trade which has lately been diverted from it by the introduction of steam navigation and other causes."

The plan of Thomas and Brown comprehended the building of a railway from Baltimore to the Ohio. Both men had brothers in England who had forwarded reports of railway experiments there. The matter had received considerable previous attention and the great proposition was discussed with an intense interest. From all the data which were gathered by the correspondents abroad, the proposition was wholly reasonable. And in its realization the promoters would find a relish intensified a hundred-fold, because of the rumors circulated that Baltimore must resign her commercial position to Alexandria or Georgetown because of the building and influence of the Chesapeake and Ohio Canal. The two railways then in operation in the United States were at Quincy, Massachusetts, a road to a quarry; and at Mauch Chunk, Pennsylvania, from the Lehigh River to the Summit Coal Mine, nine miles distant. As means of conveying

heavy freight rapidly the success of the "rail road" was assured. The idea of conveying passengers was an afterthought; it was the freight traffic that Baltimore had lost — it was the freight traffic which the Chesapeake and Ohio Canal would draw from even the best roads Baltimore could build or have built. By means of rails, cars with freight could be moved, it was estimated, at least twelve miles an hour, and railroads could be built anywhere macadamized roads could go. The supply of water at the summit level was not a critical factor.

The result of this meeting at the home of Mr. Thomas was the appointment of a committee which was ordered to review the whole proposition, and report a plan of action. On February 19, the committee report was ready, and the second meeting was held. The report affirmed that rail roads promised to "supercede Canals as effectually as Canals have superceded Turnpike Roads," and recommended that "a double Rail Road" be constructed "between the City of Baltimore and some suitable point upon the Ohio River, by the

most eligible and direct route, and that a Charter to incorporate a Company to execute this work be obtained as early as practicable."[42] On February 28, 1827, a charter was granted by the Maryland legislature; it was confirmed by Virginia on March 8, and by Pennsylvania February 22, 1828. Mr. Thomas resigned the presidency of the Mechanic's Bank to give his whole attention to the affairs of the enterprise.

A unique situation now presents itself to the historical inquirer. On the one hand we find the Chesapeake and Ohio Canal Company, under the presidency of Charles F. Mercer of Virginia, chairman of the Committee of Roads and Canals of the National House of Representatives, backed by a capital of over three and one-half million dollars, ready to proceed in building a canal through the Potomac Valley from Washington to Cumberland; on the other hand is the new rail road company called the Baltimore and Ohio Rail Road Company, with Mr. Thomas at its head, backed, in 1828, by four millions of dol-

[43] W. P. Smith's *A History and Description of the Baltimore and Ohio Rail Road* (Baltimore, 1853), p. 13.

lars, beginning to build a rail road from Baltimore to the Potomac Valley, up the valley to Cumberland, and across the mountains to the Ohio River. It was evident at the start that the rivalry would be tremendously bitter; that the two companies would give rise to factions which would harm and decry each other in every way possible. The canal idea was, comparatively, very new, and the Erie Canal being successfully prosecuted from the Hudson to the Lakes had created immense enthusiasm. On the other hand the rail road was almost an untried novelty; on such roads as were in operation in England and America horse power was the only power to be relied upon; sails were in use but were not successful under many circumstances. The steam engine had not been successfully adapted as yet; the road-beds were far more costly than even the most expensive macadamized roads; there was still a question whether the mountains could be spanned by this method of transportation, and whether, even if the locomotive could be utilized on a straight track, it could ever be useful on a curved track!

The bitterness of the rivalry was intensified by the fact that the two companies were organized within the same states, to operate in exactly the same territory and both seeking the same carrying trade. And, lastly, one company had its origin in a detrimental report from the highest authority made concerning the other. The seed of the Baltimore and Ohio Railway lay in General Bernard's report of 1826, in which the cost of building the Chesapeake and Ohio Canal across the mountains was estimated at a prohibitive figure.

Both companies went to work eagerly, and both sure of success. The infancy of the rail road science, and the fact that as yet nothing had been done in all the world on such a scale as was proposed by the Baltimore and Ohio Rail Road, naturally rendered public opinion more or less skeptical; while as for the canal, success was practically assured It would be taking a very narrow outlook upon the situation to describe the building of the canal, without presenting a briefly sketched-in history of its great rival for western trade. The two must go hand in hand.

Early in 1828, both companies were in the field surveying the route of their two highways. At the point of conflict, where the railway approached the Potomac River, it was easily seen that trouble would be precipitated. In fact, as early as June 10, the canal company got from Judge Buchanan an injunction against the railway company, to prevent them from encroaching upon lands needed by the former and granted them by charter rights.[43] The railway company returned the compliment by obtaining an injunction from the "chancellor of the state of Maryland" likewise restraining the canal company.[44] " . . If we understand it [the situation]," wrote the perplexed editor of the *Register*, June 28, "the state of things is as it was, before the injunction obtained of Judge Buchanan."[45] The canal promoters' view of the affair was thus voiced by the editor of the *National Journal*: "It appears to us to be very essential to the harmonious prosecution of these two great works, that

[43] *Niles Register*, vol. xxxiv, p. 266.

[44] *Id.*, p. 282.

[45] *Id.*

the rights of each company should be precisely defined. It was with this view, we believe, that the injunction [of June 10] in the present stage was applied for; in order that the question how far the charter granted to the canal company, giving to them the privileges of condemning such land as may be necessary for the construction of that work, barred any other company from obtaining land along the same line, until the objects of the canal company should be accomplished. By the final settlement of this question, in the beginning, all ground for future collision would be removed. We should regret, therefore, if our Baltimore neighbors should regard as an act of hostility to them, that which is, in fact, simply an assertion of our own rights. There is no disposition to embarrass their work, to which we desire all success; there is no wish to delay it, as is evident from the offer which is said to have been made . . to refer the question to . . the court of appeals now sitting at Annapolis." [46]

Plans were already making by the rival

[46] *Id.*, p. 267.

companies for grand celebrations on the Fourth of July succeeding, when, near Washington, the ground should be broken for the canal, and, at Baltimore, the "Foundation of the Rail Road," in the shape of the corner-stone, should be laid. These rival celebrations attracted great crowds to the two cities on the day named. At Washington the streets were alive with people at an early hour, and at seven o'clock the directors of the Chesapeake and Ohio Canal Company met the honored guests of the day at Tilley's Hotel. These included the President of the United States and cabinet, and the various ambassadors of foreign countries then in the city, and other dignitaries, including survivors of the Revolutionary War. The procession, attended by troops and regaled with the music of bands, marched to the Potomac and embarked on the steamboat "Surprize," for a journey to the Great Falls of the Potomac. Crowds followed on either bank of the river. "The sun shone now and then from the clear blue heavens through the fleecy clouds," wrote the inspired reporter of the *National Intelli-*

gencer; all nature "seemed to smile upon the scene." Disembarking, the company marched to canal-boats lying in the old canal built by the indefatigable labors of Washington's Potomac Company nearly fifty years before. During the journey up the canal, we are assured, the "senses of the company were regaled by a scene at once novel and really enchanting. . . There was a part of this passage, when the music of Moore's sweet song of 'The meeting of the waters,' poured its melody on the ear so as to suspend the labor of the boatmen, and charm to silence every voice." Two companies of riflemen saluted the arrival of President Adams on the ground. "Thousands hung upon the overlooking hill to the north, and many climbed the umbrageous trees." Within a hollow square, surrounded by the crowds, a spot was marked for the raising of the first spadeful of earth by John Quincy Adams. Then "amidst a silence so intense as to chasten the animation of hope and to hallow the enthusiasm of joy," the mayor of Georgetown handed Mr. Mercer, president of the Chesapeake and Ohio Canal Company, the implement

with which the ground should be broken.

"There are moments," said Mr. Mercer, "in the progress of time, which are the counters of whole ages. There are events, the monuments of which, surviving every other memorial of human existence, eternize the nation to whose history they belong, after all other vestiges of its glory have disappeared from the globe. At such a moment have we now arrived. Such a monument we are now to found." At this point Mr. Mercer handed the spade to President Adams who, in turn, delivered the address of the day. In the course of his oration the speaker said: "To subdue the earth is pre-eminently the purpose of the undertaking, to the accomplishment of which the first stroke of the spade is now to be struck. That it is to be struck by this hand, I invite you to witness." At this point the President attempted to sink the spade into the ground; but it struck a root. "Not deterred by trifling obstacles," wrote an eye-witness, "from doing what he had deliberately resolved to perform, Mr. Adams tried it again, with no better success. Thus foiled, he threw

down the spade, hastily stripped off and laid aside his coat, and went seriously *to work.* . . The multitude . . raised a loud and unanimous cheering, which continued for sometime after Mr. Adams had mastered the difficulty." [47]

Simultaneously with this memorable celebration, an imposing ceremony was being enacted at Baltimore. "Fortunately," we read in the *Baltimore American*, "the morning of the fourth rose not only bright but cool, to the great comfort of the immense throng of spectators that, from a very early hour, filled every window in Baltimore street, and the pavement below, from beyond Bond street on the east, far west on Baltimore street extended, a distance of about two miles." It was estimated that seventy thousand people were in attendance. During the early morning the crowds streamed toward the spot about two miles from the city, just south of the Frederick turnpike, where on a rise of ground in the open field a pavilion was raised for the reception of the honored guests of the occasion. The distance of

[47] *Id.*, vol. xxxiv, pp. 325–328.

the scene of laying the corner-stone of the Baltimore and Ohio Rail Road from Baltimore made the processional display more imposing, led by the First Baltimore Hussars.

The venerable guest of the day was Charles Carroll of Carrollton, the only surviving signer of the Declaration of Independence. After the invocation and the reading of the Declaration of Independence, John B. Morris, a director of the Baltimore and Ohio Rail Road, addressed the assembled throng. His words were singularly prophetic. "We are about opening the channel," he said, "through which the commerce of the mighty country beyond the Alleghany [Mountains] must seek the ocean — we are about affording facilities of intercourse between the east and west, which will bind the one more closely to the other, beyond the power of an increased population or sectional differences to disunite. We are in fact commencing a new era in our history; . . It is but a few years since the introduction of steam boats effected powerful changes, and made those neighbors, who were before far distant from each other. Of a similar

and equally important effect will be the Baltimore and Ohio rail road. While the one will have stemmed the torrent of the Mississippi, the other will have surmounted and reduced the heights of the Alleghany. . . It is not in mortals to command success, but if a determination to yield to no obstacle which human exertion can overcome . . can ensure success — success shall be ours."

Then, descending from his seat in the pavilion, Charles Carroll lifted a spadeful of earth from the designated resting place of the foundation stone, which was then set in position. Within the stone was placed a copy of the charter of the company, the newspapers of the day, and a scroll containing these words:

" This stone is deposited in commemoration of the commencement of the Baltimore and Ohio Railroad, a work of deep and vital interest to the American people. Its accomplishment will confer the most important benefits upon this nation, by facilitating its commerce, diffusing and extending its social intercourse, and perpetuating the happy union of these confederated

states. The first general meeting of the citizens of Baltimore to confer upon the adoption of proper measures for undertaking this magnificent work, was on the 2d day of February, 1827. An act of incorporation, by the state of Maryland, was granted February 28th, 1827, and was confirmed by the state of Virginia March 8th, 1827. Stock was subscribed, to provide funds for its execution, April 1st, 1827. The first board of directors was elected April 23, 1827. The company was organized, 24th April, 1827. An examination of the country was commenced under the direction of lieutenant colonel Stephen H. Long and captain William G. McNeill, United States' topographical engineers, and William Howard, United States' civil engineer, assisted by lieutenants Barney, Trimble and Dillahunty of the U. S. artillery, and Mr. Harrison, July 2d. 1827. The actual surveys to determine the route, were begun by the same officers, with the additional assistance of lieutenants Cook, Gwynn, Hazzard, Fessenden, and Thompson and Mr. Guion, November 20th, 1827. The charter of the company was con-

firmed by the state of Pennsylvania, February 22d, 1828. The state of Maryland became a stockholder in the company, by subscribing for half a million of dollars of its stock March 6th, 1828. And the construction of the road was commenced July 4th, 1828, under the management of the following named board of directors: Philip Evan Thomas, president, Charles Carroll of Carrollton, William Patterson, Robert Oliver, Alexander Brown, Isaac M'Kim, William Lorman, George Hoffman, John B. Morris, Talbot Jones, William Steuwart, Solomon Etting, Patrick Macauley, George Brown, treasurer. The engineers and assistant engineers in the service of the company are, Philip Evan Thomas, president, Lieutenant-colonel Stephen Harryman Long, Jonathan Knight, Board of Engineers. Captain William Gibbs McNeill, U. S. topographical engineer. Lieutenants William Cook, Joshua Barney, Walter Gwynn, Isaac Trimble, Richard Edward Hazzard, John N. Dillahunty of the U. S. artillery. Casper Willis Weaver, superintendent of construction." [48]

[48] *Id.*, pp. 317–318.

Both companies now went quickly to work on their undertakings; in the same issue of the *Register* (July 19, 1828), and side by side on the same page are these notices:

"The engineers of the Baltimore and Ohio Rail Road Company have, by public notice, invited proposals for the construction of *twelve miles* of the road, commencing at the city [Baltimore] line, and extending westwardly." [49]

"The Chesapeake and Ohio Canal Company have issued proposals for the excavation, embankment and walling, of the 11½ miles of the Chesapeake and Ohio Canal, in half mile sections, extending from the head of the Little Falls to the head of the Great Falls of the Potomac river."

In August, thirty-four sections of the canal from Little Falls to Seneca (seventeen miles) were placed under contract and on September 1, work was actually begun.[50] "At this time the capital stock subscribed and payable in current funds, exclusive of

[49] *Id.*, p. 331.

[50] *Report of the Chesapeake and Ohio Canal Company* (for 1851), pp. 1–44.

subscriptions in the stocks and debts of the Potomac [Canal] Company, amounted to 36,094 shares, or $3,609,400 as follows:

	Shares	*Equivalent to*
United States	10,000	$1,000,000
Washington City	10,000	1,000,000
Maryland	5,000	500,000
Alexandria	2,500	250,000
Georgetown	2,500	250,000
Shephardstown	20	2,000
Individuals	6,074	607,400
	36,094	$3,609,400" [51]

Though the rail road was far more of an experiment than the canal, its stock had been taken up quickly. "The subscription books of the company," reads a note in the *Register* of April 7, 1827, "were closed on Saturday the 31st ult. on which day alone were taken thirteen thousand three hundred and eighty-seven shares, making, with those previously taken, *forty-one thousand seven hundred and eighty-eight shares*, inclusive of the five thousand allotted to and taken by the corporation of Baltimore. The amount of money, therefore, sub-

[51] Scharf's *History of Maryland*, vol. iii, p. 170.

scribed by this city [Baltimore] alone, is *four millions one hundred and seventy-eight thousand dollars*, divided amongst *twenty-two thousand names.* . . Each name will be entitled but to 7-10ths of a share . . which will be further reduced by the subscriptions in Frederick and Hagerstown, which are not yet ascertained, but are supposed to amount to two thousand shares. It is believed that of this subscription, which outruns so largely the fund contemplated to be raised, but a comparatively small part has been made with a view to speculation. There is, therefore, every reason to think, that the stock is principally in the hands of persons who intend and are able to hold it." [52]

The question of stock subscription brings up one of the points of conflict between the canal and the road — a government subscription to the Baltimore and Ohio Rail Road. We have seen that the government had subscribed for ten thousand shares, or one million dollars, in the Chesapeake and Ohio Canal Company stocks. Accordingly, the Board of Directors, headed by Charles

[52] *Id.*, vol. xxxii p. 100 (from the Baltimore *American*).

Carroll, signed a memorial, January, 1828, to the United States Congress asking for a national subscription. "The Senate committee to which the memorial was referred reported a bill authorizing a subscription of $1,000,000. The committee of the House of Representatives also made a favorable report, but it being late in the session when the committee reported, it would submit no bill. The company therefore renewed its petition at the next session of Congress in 1829, but, although the committees of both houses of Congress recommended a qualified subscription to the company, the measure failed. It was said at the time[53] that the reason the company was unsuccessful in this application was because of the opposition of the president of the Chesapeake and Ohio Canal Company, who was at this time chairman of the committee on roads and canals in the House of Representatives.[54]

[53] Smith's *History and Description of the Baltimore and Ohio Rail Road*, p. 22.

[54] Reizenstein's, "The Economic History of the Baltimore and Ohio Railroad," *Johns Hopkins University Studies*, fifteenth series, vii–viii, p. 23; *Congressional Debates*, vol. vi (1829–30), pp. 453–455, 1136–1137.

The rail road company was not in great need of a national subscription, though dark days were at hand. A perusal of the reports of President Thomas, the first of which was made October 1, 1827,[55] will cause the reader to marvel "that the formidable obstacles almost daily encountered . . did not crush the energies of the Company, and induce them to abandon the work. . ." An unforeseen difficulty in the shape of an immense cut near Baltimore called for an expenditure of nearly a quarter of a million. And it soon developed that the Canal Company, which had deprived the rail road of the government's aid was yet to strike a harder blow.

By its charter the Chesapeake and Ohio Canal Company had secured a right of way for a canal on the Maryland bank of the Potomac from Washington to Cumberland. By its surveys the rail road was compelled to gain the Potomac at the "Point of Rocks," twelve miles below Harper's Ferry, and follow the river to that point. Otherwise a tunnel would have to be built under the mountain spurs — a financially

[55] *Niles Register*, vol. xxxiii, pp. 137–138.

impossible alternative. The point at issue in the great quarrel, which became exceedingly bitter and was at last settled only by Federal interference, was, therefore, very plain. This famous dispute for right of way through these strategic twelve miles was not settled until 1832, both companies suffering in consequence of the delay, and the railway losing its argument but effecting a compromise. In this year the Court of Appeals reversed the decision of the Chancery Court of Maryland and sustained the Canal Company's contention for the right of way between the Point of Rocks and Harper's Ferry. After a series of compromise proposals by the rail road to the canal had been refused, the Maryland legislature took up the matter, both works being important to that commonwealth. On May 9, 1833 a compromise was effected by the passage of a law calling for the joint construction of canal and rail road through the disputed territory; to Messrs. Charles F. Mayer and Bene S. Pigman great credit was due in handling successfully this problem, which had at its root the bitter rivalry of many years standing. The com-

THE CACTOCIN AQUEDUCT

[*By this aqueduct the Chesapeake and Ohio Canal crosses Cactocin Creek, ten miles from Harper's Ferry. It was over the right of way here at the "Point of Rocks" that the bitter quarrel between the canal and the Baltimore and Ohio Railway was precipitated. The piers of the railway bridge over the same stream may be seen through the first arch of the aqueduct.*]

promise cost the rail road heavily. It was to subscribe for 2,500 shares of Canal Company stock ($266,000) and the canal company built the road through the territory in dispute (the Point of Rocks). The Rail Road Company completed the road to the Maryland shore of the Potomac opposite Harper's Ferry in 1834, it being opened December 1. Here, however, it was to pause, for the compromise signed by the two companies demanded that the rail road should not be built up the Potomac until the canal should have been completed to Cumberland — if that was done within the time named in the charter (1840).

Though at all times master of the situation, the Canal Company found its task tremendously heavy; the weather, varying prices of labor and necessaries, combined with great physical obstacles, rendered the undertaking one in which patience was as necessary as capital. Both were many times exhausted. We have seen that contracts were first let in 1828. By the president's report to the legislature in January, 1831, we find that forty-eight miles were

under contract and that twenty-one miles were in use during the fall of 1830 and winter of 1830–31.[56] In February, 1833 the state of Virginia authorized a subscription of Chesapeake and Ohio Canal stock to the amount of $250,000, subject only to reasonable conditions.[57] In March, 1834, Maryland authorized an additional subscription of $125,000, and promised a larger subscription in case the National Government voted the investment of an additional million in the canal. Neither the government or any state, save only Maryland, befriended the Chesapeake and Ohio Canal, however, from this date forward.[58] At this time (June, 1834) the canal had cost $4,062,991.25. Seventy-eight miles remained to be built and the Company's funds were unequal to the task. The friends of the great work met in conven-

[56] *Report from the President of the Chesapeake and Ohio Canal Company to the Legislature of Maryland, January 31, 1831.*

[57] *Report to the Stockholders . . .* made *February 27th, 1851*, p. 47. Many of the following facts are taken from this *Report*, which is the only history of the Chesapeake and Ohio Canal Company extant. It will be referred to as *Report of 1851*.

[58] *Id.*, p. 48.

tion at Baltimore in the December following, and a committee was appointed to report on probable expense of completion of the canal, and committees to memorialize Congress and the legislatures of states interested in the work. The former committee brought in a report, which consisted of nothing more reliable than an expression of opinion based on former experiences, which gave the public to understand that the canal could be completed in two years with two million dollars.[59] The other states turning a deaf ear to the plea, Maryland came to the rescue, March 7, 1835, and appropriated the entire two millions needed.[60] It was granted in the form of a loan, the state reserving the power to convert it into capital stock at any future time if it was deemed expedient.

The company now took the steps which should have preceded the circulation of any opinion by friends of the canal as to the expense of completing it — a survey and estimate was made. This being done, it was found that the cost of completing the

[59] *Id.*, p. 50.

[60] *Id.*, p. 52.

canal exceeded three and one-half millions. The consternation aroused by this report can be imagined. Many felt that Maryland had been deceived and imposed upon. But the friends of internal improvements arose to the occasion. Meetings were held up and down the state. The canal and rail road people united hands which formerly had been clinched in threatening attitude, and on June 3, 1835, the Maryland Legislature passed the famous "Eight Million Dollar Bill."[61] Its items were as follows:

To the Chesapeake and Ohio Canal Company . . .	$3,000,000
To the Baltimore and Ohio Rail Road Company . . .	3,000,000
To the Eastern Shore Rail Road Company	1,000,000
To the Maryland Canal Company	500,000
To the Annapolis Canal Company	500,000
	$8,000,000

As it stood the bill was a great victory for the Baltimore and Ohio Rail Road interests, as one of its most important pro-

[61] *Id.*, p. 61 (*Laws of 1835*, ch. 395).

visions demanded that the Chesapeake and Ohio Canal Company permit its rival to ascend the Potomac Valley.[62] Baltimore went wild over the passage of the act. A public dinner, fireworks, the ringing of bells, and a salute of a hundred guns gave evidence of the feeling at the Maryland metropolis. "The citizens of Baltimore had, indeed, 'evident cause' to rejoice at the triumph which had been achieved. All the important provisions of the bill, looked to the interests and had been framed with a view to the aggrandizement of the city. Its great leading object was, to secure the completion of the rail road to the Ohio river, and the completion of the canal to Cumberland, and its connexion with Baltimore by the route that might be found most conducive to the prosperity of that city. The enthusiasm of the occasion was, therefore, all embracing, on the part of the citizens of Baltimore. In the public demonstrations that were ordered, no dis-

[62] The canal had been built at this time only to Holman's Dam, twenty-six miles above Harper's Ferry, eighty-six miles from Washington; twenty-six miles more were under way.—*Report of the President and Directors. . . April 22, 1835.*

crimination was indicated, in regard to any particular work. No thought of jealous rivalry — no dream of future disappointment, or difficulty, was allowed to mingle in their exaltation at the auspicious event. But the act was not welcomed, by the Chesapeake and Ohio Canal Company, with the same satisfaction and pleasure. Indeed, by many of the stockholders, it was looked upon coldly, and, by some, positively objected to. Serious doubts were entertained, for a time, whether it would be accepted by the company." On July 28, 1836, however, the stockholders assented and agreed to the provisions of the Eight Billion Dollar Act.[63]

The directors of the Baltimore and Ohio Rail Road gave their assent to the law of 1835 on July 25, 1836. In addition to granting them the right to build their road up the Potomac Valley, the law allowed the city of Baltimore to subscribe to the stock, and, accordingly, Baltimore subscribed immediately for three million dollars worth of stock. Therefore within a year the assets of the road were increased by six million dollars.

[63] *Report of 1851*, p. 66.

Brighter days were now dawning for the road. The past six years had been a time of trials, drawbacks, and discouragements. The contest for a right of way to Harper's Ferry had been exasperating and had at last been won only by agreeing to limit the extension of the road to that point. There were other difficulties to be overcome before the new company could claim the genuine confidence of the public. All features of the road, excepting the road-bed alone, were experiments — rails, sleepers (ties), and cars. The road was opened May 22, 1830, and soon the public had passed a favorable verdict on the enterprise. In this day we would call the affair a horse-car railway. The only difference between this and other ordinary roads was the fact that the coach wheels ran on rails, being held in position by means of flanges. The coaches used were almost precisely like those on an ordinary pike, but were mounted on four light cast-iron wheels. Among roads — dirt, macadamized, plank, and corduroy — this road with rails was "the latest." As to its general practicability there was much discussion. What grades

could it overcome? Would curves be permitted as the scheme developed? As to its popularity, no question could be raised. Though the company had few cars and the track was a single track and the road but twelve miles long (running from Baltimore to Ellicott's Mills), during the first four months of operation the receipts were $20,012.36, and ten times the freight that could be handled was offered.[64] An advertisement of the rail road of 1830 is interesting.[65] "Brigades" (trains) of cars left Baltimore at 6 and 10 A. M. and from 3 to 4 P. M.; brigades left the opposite terminus at "6 and 8½ o'clock, A. M." and "12½ and 6 o'clock P. M." Drivers were not allowed to permit passengers to enter the cars without tickets. A postscript reads: "P. S. Parties desirous to engage a Car for the day can be accommodated after the 5th July."

The question of motive power was the great question of the hour. Horses and mules only had been used on the other two rail roads in Pennsylvania and Massachusetts; in this year (1830) on the Liver-

[64] Smith's *History and Description*, p. 25.

[65] Baltimore *American*, July 17, 1830.

pool and Manchester Rail Road steam locomotives were used more successfully than had been the case on other English roads, where their speed had never exceeded the gait of an easy-going road horse — six miles an hour. It was greatly doubted whether such a machine was possible; and if, under good conditions, steam locomotives could haul a "brigade of cars" faster than a horse or mule on straight track, the thing would never get around a curve; and it was never the plan of the builders of the Baltimore and Ohio Rail Road to avoid curves. Other locomotives than steam were being prepared for trial on the new rail road. Evan Thomas, brother of the president of the road, invented a car which was moved by sails! It was named "Æolus." "I well recollect," recorded Benjamin H. Latrobe, "the little experimental locomotive of Mr. Evan Thomas; it was 'a basket body,' like that of a sleigh, and had a mast, and, if I recollect, 'a square sail, and was mounted upon four wheels of equal size.' It ran equally well in either direction, but of course only in that in which the wind happened to be blowing at

the time, although it would go with the wind abaft the beam, but at a speed proportioned to the angle with the plane of the sails. It was but a clever toy, but had its use at the time in showing how little power of propulsion was necessary upon a railway, compared with the best of the roads that had preceded it."[66] The "Æolus" attracted much attention; Baron Krudener, envoy from the emperor of Russia, made an excursion in the sailing car, managing the sail himself. On his return he declared he had never before travelled so agreeably, and remarked that he 'would send his suite from Washington to enjoy sailing on the Rail Road.' The President of the Company, to whom he had been introduced, caused a model sailing car to be constructed, fitted with Winans' friction wheels, which he presented to him, with the reports that had been published by the Company, to be forwarded to the Emperor. As a result Ross Winans of Baltimore was invited to Russia to take charge of the emperor's plan of binding that empire with railways. His success marked one of

[66] Scharf's *History of Maryland*, vol. iii, p. 167.

the earliest if not the most spectacular instances of the success of American genius abroad." [67]

A horse-power locomotive was another invention, prior in date to the sailing car. "A horse was placed in a car and made to walk on an endless apron or belt, and to communicate motion to the wheels, as in the horse-power machines of the present day. The machine worked indifferently well; but, on one occasion, when drawing a car filled with editors and other representatives of the press, it ran into a cow, and the passengers, having been tilted out and rolled down an embankment, were naturally enough unanimous in condemning the contrivance. And so the horse-power car, after countless bad jokes had been perpetrated on the cowed editors, passed out of existence, and probably out of mind." [68]

The fate of the railway hung suspended on the successful solving of the question of motive power.[69] Peter Cooper's locomotive

[67] Smith's *History and Description*, pp. 25–27; Brown's *History of the First Locomotives in America*, p. 124. The name is here given as "Meteor."

[68] *Id.*, pp. 124–125.

[69] Peter Cooper to Wm. H. Brown, *Id.*, p. 109.

"Tom Thumb," constructed in 1829, at Baltimore, and sent over the Baltimore and Ohio Rail Road to Ellicott's Mills in one hour and twelve minutes, August 28, 1830, settled the momentous question.[70] In spite of its laughable features the picture representing the "Exciting Trial of Speed between Mr. Peter Cooper's Locomotive 'Tom Thumb,' and one of Stockton & Stokes's Horse-Cars,"[71] in which the little model locomotive has caught up with and is passing the horse-car, represents nothing less than the dawning of a new epoch in human history. Though improvements were not made with great rapidity, they came as fast as the rail road was able to profit by them. The Baltimore and Ohio Rail Road merited the honorable title that has been given it — the Railway University of America. While its rival, the Canal Company, had a struggle to secure funds to do its work, the railway carried the same burden and with it the heavier burden of doubt as to the future and many physical and mechanical perplexities forever holding

[70] *Id.*, pp. 114–116.

[71] *Id.*, p. 119.

back successful realization of its schemes. For illustration, take the question of track: "The granite and iron rail; the wood and iron on stone blocks; the wood and iron on wooden sleepers, supported by broken stone; the same supported by longitudinal ground-sills, worked to a surface on one side to receive the iron, and supported by wooden sleepers; and the wrought iron rails of the English mode; had all been laid down, and as early as the year 1832, formed different portions of the work."[72] With the advent of the locomotive the light coach wheels were replaced by cast-iron wheels "to the perfection of which Ross Winans, John Elgar, Jonathan Knight, and Phineas Davis all contributed."[73] In 1832, steel springs were placed upon a new locomotive "York" — built at York, Pennsylvania — and soon springs were placed on all engines and cars. The discovery of the advantage of combined cylindrical and

[72] Smith's *History and Description*, p. 33.

[73] Reizenstein's *Economic History*, p. 34. It is interesting to find Jonathan Knight, formerly Superintendent of the Cumberland Road in Ohio, now Chief Engineer of the Baltimore and Ohio Rail Road.—Cf. *Historic Highways of America*, vol. x, p. 91.

conical car wheels was a great forward step helping to solve the question of turning curves sharply. As early as 1831 the Rail Road Company offered a prize of $4,000 for the best locomotive offered for trial on the road.[74] The "York" was the only engine of three offered that was capable of any good service. Up to June 1834, this engine, with the "Atlantic" and "Franklin" were the only locomotives on the road. Horse-cars were still in common use. By the fall of 1834, five more locomotives were added and eight more had been ordered.

Having passed through its darkest days of struggle with the Canal Company and with the vexatious problems of internal betterment of rolling stock and motive power, the Baltimore and Ohio Rail Road was now in 1836, quite ready to take advantage of the provisions of the new law which made it possible to throw its gleaming rails up the Potomac from Harper's Ferry to Cumberland and on to the coveted Ohio Basin. With the momentous question represented by the locomotive once solved

[74] Smith's *History and Description*, p. 30.

and solved forever, with an open route from tide-water to Cumberland and the West — little wonder that the controllers of the canal had been only lukewarm in their attitude to the Eight Billion Dollar Act! Despite their efforts, the railway was winning its way; with every new invention the West was made nearer the East; the locomotive was solving Washington's old question how the Potomac Valley could hold the West in fee. As Fate would have it — or Fortune — the hard labor and the thousand perplexities of many men from Washington down, who had attempted first to get in commercial touch with the West by means of rivers, then by means of a canal, were being swept aside by one blast of that little locomotive's whistle. How changed now the situation. But a few years back the canal was master of the Potomac Valley; it had allowed the feeble rail road a passage-way through the Point of Rocks only on condition that not one foot of track should be laid above Harper's Ferry until the canal had been completed to Cumberland. Now the canal was to receive sufficient state backing to complete its line

to Cumberland, on condition that the rail road be allowed equal rights between Harper's Ferry and Cumberland! The gloomy year of 1837 in the financial world held the rail road back, and it was not until 1839 that the work was actively pushed on. From now on there was no delay; in June, 1842 the road was completed to opposite Hancock, and by the end of the year it was completed to Cumberland — one hundred and seventy-eight miles from Baltimore. Exciting as is the story of the westward movement of this giant, it cannot be treated here. The first division to Piedmont was opened in June 1851, not far from the "blind" trace Washington rode through far back in 1784, in search of a portage road from eastern to western waters. By June, 1852, the road was opened to Fairmont on the Monongahela, and on the following January the first train passed from Fairmont to Wheeling on the Ohio.[75] On the night of January 12, 1853 the banquet was spread in Wheeling to end the day of celebration. And of the five "regular" toasts none was so typical

[75] Smith's *History and Description*, pp. 78–81.

or welcomed so loudly as that to "Thomas Swann:[76] Standing upon the banks of the Ohio, and looking back upon the mighty peaks of the Alleghanies, surmounted by his efforts, he can proudly exclaim — 'Veni, vidi, vici.'"

At the meeting of the Maryland legislature in December, 1838, the Chesapeake and Ohio Canal Company asked further assistance from the state and submitted an estimate of the work yet to be done to finish the canal to Cumberland. This estimate had been prepared by the chief engineer of the Chesapeake and Ohio Canal Company and reported to the board of president and directors January 22, 1839. Since the estimate of January, 1836, this was the first revised estimate, regarding quantities and including the extent of the whole line from Dam No. 5 to Cumberland, that had been made. Including a dam at the great Cacapon — now known as Dam No. 6 — but excluding the dam designated

[76] Mr. Swann was elected president of the rail road in 1848 and had ably conducted its affairs during the past five critical years, a worthy successor of Thomas and McLane.—*Id.*, p. 156.

as Dam No. 7, which was then temporarily dispensed with, the estimate submitted ran as follows:

For the 50 miles above the mouth of the Cacapon, now better known as Dam No. 6	$4,440,657.00
For the 27½ miles between Dam No. 5, and that point	1,640,000.00
	$6,080,657.00

Of this work there had been done, on the first of December, 1838: $947,394.27 on the 50 miles; and $1,589,453.44 on the 27½ miles. This left $3,543,809.29 as the work remaining to be done on December 1, 1838, to complete the canal to Cumberland. The work done in December was estimated at about $90,000 which reduced the amount remaining to be executed, on January 1, 1839, to about $3,450,000. The twenty-seven and a half miles between Dam No. 5 and Dam No. 6 were nearly completed at the time the estimate was submitted. In April, 1839, navigation opened to Dam No. 6, which remained the western terminus for a decade.

The $3,560,619 estimate of the seventy-

eight miles between Dam No. 5 and Cumberland, made in January 1836, was arrived at by adding together the surveys of two distinct parties of engineers. By comparing the estimate submitted in December 1838 with the foregoing, made in January 1836, which included the same distance, it will be observed that although the work on more than one-third of the distance had been completed, the latter estimate was nearly seventy-one per cent in excess of the former. About fifty-seven per cent of the increase was attributed by the chief engineer to the advance in the cost of labor, which was very high. The pecuniary difficulties of the company, the high prices and great difficulty in procuring provisions along the line of the canal, and the want of proper control over the laborers by the civil authorities of the state, were some of the causes contributing to this excess. The remaining fourteen per cent of the increase was stated to be chargeable, mainly, to an increase of quantities found to be necessary in the progress of construction for the security of the canal. The "revised estimate" of Janu-

ary, 1839, was the last estimate upon which an available appropriation has been made to the Chesapeake and Ohio Canal Company by the state of Maryland.

A committee was appointed, after the presentation of the memorials and the revised estimate, to investigate the affairs and transactions of the company. In their report they expressed their belief in the importance of an early completion of the canal and suggested the expediency of an appeal to the general government. Instead of an appropriation by the state they recommended that a proposition be made to Congress, that the general government should either aid the company, or transfer to the state of Maryland the interest of the United States in its capital stock both as an original stockholder and as assignee of the district cities, on the condition that the state would provide the necessary means to complete the canal to Cumberland. A similar proposition had previously been made under joint resolutions adopted at December session, 1837, but nothing definite had resulted. The legislature, therefore, was not disposed to postpone the

advantages that were anticipated to result from the completion of the work by a hopeless recurrence of abortive expedients. They were of the opinion that the state had already gone too far in its investments in the company to stop now — and it could not recede. The unexpended and unencumbered balance on hand was $681,853.59. This was not sufficient to continue the work during the present year. The credit of the state was high and above suspicion. Both applications were granted. An act was passed on April 5, 1839, known as the act of December session, 1838,[77] releasing the Chesapeake and Ohio Canal Company from the twenty per cent premium, stipulated in the act of 1835, and authorizing the commissioner of loans to issue to the company five per cent sterling bonds to the amount of $3,200,000 as an equivalent for, and in lieu of, the $2,500,000 of six per cent certificates which had been delivered to the company, and the $500,000 of six per cents which had been retained by the treasurer of Maryland as security for the payment of the premium. This act made

[77] *Maryland Laws*, 1838, ch. 386.

a further appropriation[78] which authorized an additional subscription to the capital stock of the company to the amount of $1,375,000 payable in five per cent sterling bonds.

These acts were promptly accepted by the Chesapeake and Ohio Canal Company and their provisions carried into effect and complied with. An instrument of guaranty, and mortgages to secure the payment of the three years interest, in compliance with the condition of both acts, were duly executed on May 15, 1839, and delivered to the treasurer of Maryland. The subscription of $1,375,000 authorized by the latter act was the last subscription made to the capital stock of the company. A report of the treasurer, issued June 1, 1839, stated that the means of the company, over and above its liabilities and applicable to the construction of the canal and the payment to the state of the interest on the bonds, amounted to $2,087,139.94. In this statement the whole amount of the sterling bonds was computed at par value. The cost of the remaining work to be done to

[78] *Maryland Laws*, 1838, ch. 396.

complete the canal, on the basis of the January 1839 estimate, was, at that time, $2,935,103.

At the following session of the general assembly, December 1839, the company made a formal application to the state for further assistance. The accompanying communication, dated February 10, 1840, affirmed the correctness of the engineer's estimate of January, 1839, and stated that the fifty miles of canal between Dam No. 6 and Cumberland would cost $4,440,350. Of this, $2,030,128 was expended on the first of January 1840, leaving $2,410,222, necessary to complete the work. The resources of the company, on the same day, estimating 318,175 Maryland five per cent sterling bonds at par, were stated to be $1,489,571; the liabilities of the company $1,244,555, leaving, January 1, after paying all debts, a balance of $245,016. Upon this exhibit, presented to the legislature, the additional appropriation was asked for.

At this time the public appeared fully cognizant of the great importance of pressing forward an early completion of the canal. The members of the legislature

were also generally inclined to the adoption of adequate measures of relief; but the question which arose now was concerning the manner in which the relief should be given. Two ways were open: the state bonds could be placed in the hands of the commissioner of loans and be sold at par, and the proceeds paid over to the Chesapeake and Ohio Canal Company; or, the bonds could be delivered to the president and directors of the company and sold by them at par, or be exchanged at their nominal value for the evidences of debt of the company. Apparently, there was no substantial difference between these two propositions, but, because of the views and feelings that originated and entered into the controversy, a broad line of distinction was drawn between the two plans. Each had its advocates and the supporters of each were equally immovable — consequently the legislature adjourned without making any appropriation at all. In this emergency the company took into consideration the course most proper to be adopted in regard to continuing the work on the canal. When called upon to

present his views in reference to a total suspension of operations and the postponement of the completion of the canal, the chief engineer estimated that the accumulation of interest and other losses would amount to not less than a million dollars. Petitions from the contractors, merchants, and others, residing in the neighborhood of the operations, were received by the company, begging the continuation of the work and an issue of scrip, or promissory notes, which would be a convenience to each community. Accordingly the company decided to allow the work to proceed and to gratify the petitioners by issuing scrip. In 1839, and previous to that time, the issues had generally been secured by a pledge of state bonds or stocks. The present issue, on the other hand, which, during the year 1840, and from January to April 1841, amounted in the aggregate to $555,400, had no pledge to sustain it. It was the company's last issue of scrip.

At the December meeting of the Maryland legislature, 1840, an appropriation for aid was again asked for. The expenditures upon labor performed during the year had

amounted to $531,160, and the sum required to finish the canal to Cumberland, according to the estimate of January 1839, was stated to be $1,825,892. In addition to this, estimating the unsold state bonds at eighty per cent, the company would need $700,000, exclusive of the interest due the state, to redeem the scrip and other debts. A committee was appointed by the legislature which made a rigid examination into the affairs and transactions of the company. The disposal of the state bonds and the issues of scrip were severely censured — and the general assembly again adjourned without adopting any measure of relief. Because of the threatening aspect of affairs, and the difficulty of procuring the necessary means for the continuance of the work on the canal, in the year 1839 the company began to cut down operations. In the month of May of that year the amount expended on the work was $96,320. In December, 1839, and January and February, 1840, the expenditure had been reduced to an average of $40,817 per month. The policy was also adopted of paying off the old loans, which had been secured by a pledge

of the six per cent certificates without restriction as to sales, by an immediate sale of the five per cent sterling bonds. At a meeting of the stockholders of the company, on April 3, 1841, an adjourned session of a general meeting, the proceedings state that the president announced "if a breach should take place in the canal, the cost of repairing which might be $1500 or $2000, the money, and credit of the company, would not be sufficient to secure the repair of it, but that the company must, thereupon, be declared to be utterly bankrupt."

At an extra session of the Maryland legislature which was convened in March, 1841, by the proclamation of the governor, to provide means to pay the interest on the state debt, an application for further aid was again made by the company. On the fifth of April, 1841, an act was passed for an additional loan of two millions of dollars, payable in six per cent stock, or bonds of the state, which the legislature required to be sold by the treasurer of the state in behalf of the company. "The bonds were made to rest, upon the faith of the State

and upon a specific pledge of the proceeds of the State's investments in the capital stock of the company, for the payment of principal and interest. The act, however, contained, as conditions precedent, clauses requiring the several companies of Allegany county, to enter into bond, satisfactory to the treasurer of the State, for the construction of a rail road, from the [coal] mines, to connect with the canal, and to complete the same simultaneously with its completion to Cumberland; and also, to guaranty the payment, to the company, of at least $200,000, per annum, for the transportation of their own coal on the canal." The board of directors, as well as the coal and iron companies of Allegheny County, made strenuous efforts to comply with these conditions, but the securities offered were not satisfactory to the treasurer of the state and the act failed. Later it was repealed.

At the December session, 1841, the professional beggar again asked aid of the legislature, but failed to secure it. For some time previous several contractors had been prosecuting the work on the canal on

SCRIP ISSUED BY THE CHESAPEAKE AND OHIO CANAL COMPANY

their own credit and at their individual expense, quite sure that the state would make an appropriation at this session. Failing to receive the desired assistance, the work on the canal stopped abruptly immediately after the adjournment of the legislature, and before the end of the year 1841 not a man was in employ between Dam No. 6 and Cumberland. At this time, prostrate and overwhelmed with difficulties, the company experienced great depression. Not only were there great liabilities to the state, secured by mortgage liens on the canal and its revenues, but in addition to this, the debts and obligations of the company due to individuals on scrip, acceptances, certificates of debt, common loans and open amounts, as stated in the treasurer's abstract, on October 1, 1843, amounted to $1,174,566.31. The urgent appeals for payment coming from those creditors, to whom large amounts were due for work done, and who had been quite reduced to poverty, excited general sympathy. The canal had been completed to Dam No. 6 in 1839, to which point it was now only navigable. The chief engi-

neer estimated that it would cost $1,545,000 to complete the eighteen and three-tenths miles to Cumberland. The United States, the state of Virginia, the cities of the District of Columbia and all the stockholders had long since discontinued their patronage and refused all pecuniary aid; even the state of Maryland, which had heretofore sustained the company and loyally upheld it in all its misfortunes, was now unable to give further assistance. The state was struggling under the evils of disordered finances and prostrate credit and a black shadow had been cast upon the name of the state because of its great debt contracted in behalf of the Chesapeake and Ohio Canal. Unable, because of the want of timely legislation, after the default of the internal improvement companies was made known, to meet her own public liabilities, she was certainly unable to give assistance to others. So the canal had no friend and no resources. The freshets of April and September, 1843, made heavy breaches in the canal which had to be repaired. This was done by the aid of accommodations from the banks and as a

consequence the deficit was large and embarrassing at the close of that year. The entire revenues of the year only amounted to $47,635.51 and the current expenses to $83,792.80, showing a deficit of $36,157.29.

At the December session, 1844, application was renewed for a waiver of the state liens on the revenues of the canal so as to empower the company to issue its bonds, with preferred liens on its revenues to an amount not exceeding two millions of dollars. In principle and amount it was similar to the measure which had been proposed and rejected at the sessions of 1841 and 1842. Those who had been friends to the company during previous periods of difficulty were now conspicuous for their absence only, and the officers alone stood in vindication of the measure. Instead of a state convention and primary meetings to sustain and encourage the company, it was surrounded by enemies who opposed. The city of Baltimore took decided grounds in opposition to it, and the newspapers of the city were full of communications adverse to the proposed measure. The rail road company with diplomatic skill

sought to crush the effort by statements to the effect that a connection between the rail road and canal at Dam No. 6 would render further prosecution of the canal unnecessary. It also with probably a similar object in view stated that "many years would elapse, before the demand for coal would require more than 100,000 tons, in any one year, whatever facilities or transportation may be afforded." Had the same opposition been brought forward in December of 1834 or 1835 the work on the canal at that time would probably have been stopped; for, even with the powerful support of the immediate friends of the internal improvement companies, and the influential backing of the city of Baltimore, the appropriations of 1834 and 1835 were obtained only after a prolonged struggle, especially on the part of the canal company. The question of 1844 was one of an entirely different nature. It was not a question of internal improvement — not whether the wealth in the mountains should be added to the general aggregate of the state's resources, but a question of finance — a question of whether the mil-

lions which the state had invested in the Chesapeake and Ohio Canal Company, should be given up as irretrievably lost or an effort be made to make the investment productive. Maryland had already expended seven millions on the work and had never expected any return from it until after completion. Neither money nor the state's credit was now asked, only that, since she herself was in pecuniary difficulties arising mainly from her support of the company (and these investments would remain unproductive until the completion of the canal) the state would waive her unprofitable liens on the revenues to such an extent as would enable the company to finish the work upon a preferred pledge of its future income. Although the opposition was great and influential there were Marylanders in the house of delegates at the December session, 1844, who believed in the importance of the completion of the canal and whose judgment was earnestly enlisted in favor of the plan. After a prolonged struggle the act waiving the liens of the state,[79] under which the

[79] *Maryland State Laws*, 1844, ch. 281.

canal was completed, was passed — passed on the last day of the session, March 10, by the limitation of the constitution, and received a majority of one vote in each house of the assembly! And, even then, it had been so modified that its most prominent advocates pronounced it valueless and felt disposed to abandon its support!

In the charter of the Chesapeake and Ohio Canal Company, prior to the year 1844, there was no express power to borrow money for the completion of the canal, and its right to do so had been much questioned. Even the force and validity of the mortgages which it had given the state to secure the payment of the two million loan were called in question. Also, the time limited by the charter for the completion of the canal to Cumberland expired in 1840, and since that time the corporation had existed merely by the suffrance of the power which had created it. No steps had been taken to procure amendments in either of these points. In the belief that the measure suggested by the company for the completion of the canal must prevail,

and that it would prove ineffectual unless these defects in the charter were remedied, the board of president and directors, at the session of 1843, transmitted a memorial to the legislature of Virginia asking for the passage of an act providing for these amendments. It also asked that the powers of the company be enlarged, in regard to extending the canal by a slackwater improvement to the mouth of Savage River whenever it seemed expedient. This memorial was accompanied by a draft of a bill which embraced the desired provisions and contained a reservation as to the liens of Maryland. The legislature of Virginia promptly acted and, with unimportant changes, passed the bill on January 20, 1844. The act provided for an extension of the time for the completion of the canal to Cumberland to the first of January, 1855; and authority was conferred upon the president and directors, or a majority of them assembled, "to borrow money, . . to carry into effect the objects authorized by the charter of the company, to issue bonds or other evidences of such loans, and to pledge the property and revenues of the

company, for the payment of the same, and the interest to accrue thereon, in such form, and to such extent, as they may deem expedient; with a proviso saving the prior rights or liens of the state of Maryland, under the mortgages which had been executed by the company, to this state, except in so far as they should be waived, deferred, or postponed, by the Maryland legislature." When the company's acceptance was sent to the state treasurer, the act went into effect. The mortgage, bearing date of January 8, 1846, and executed in favor of the state of Maryland, was placed in the hands of the treasurer by the canal company. The amendments to the charter were ratified by Congress about one month before the passage of the act waiving the liens for the completion of the canal.

Considering the general depreciation of American securities and Maryland's discredit at this period, and the small means allowed for the accomplishment of the ends proposed, a sale of bonds at par was entirely out of the question. The only practicable course for the company to follow was a

resort to a contract payable in bonds covering all the subjects necessary to be provided for; this course was adopted. The board, with the approval of the Maryland state agents, after advertising for proposals, concluded a contract which was carefully guarded in all its provisions, on the twenty-fifth of September, 1845. For the consideration of $1,625,000 of the bonds to be issued under and pursuant to the act of 1844,[80] the four contractors pledged themselves to commence the work within thirty days and finish the canal to Cumberland within two years, according to the estimate of 1842; they were, also, "to pay to a trustee, for the use of the company, in twenty-one monthly instalments, an aggregate sum of $100,000 in money, to enable the Board of President and Directors to liquidate land claims, engineering, and other incidental expenses — and to pay the interest on the bonds to be issued under the act, until, and including the half year's interest that would fall due, after the work had been finished."

Very soon after the contract was made,

[80] *Maryland State Laws*, 1844, ch. 281.

the contractors commenced work on the canal between Dam No. 6 and Cumberland. All went well until the legislature again met and adjourned without restoring the credit of the state, when, their private means being exhausted, once more the contractors were compelled to suspend operations about June 1, 1846. The chief engineer's last report, made before the suspension, shows that the work done under the contract, according to the revised estimate of August 1845, amounted to $55,384. In addition to all other misfortunes, during the years 1846 and 1847 a series of freshets occurred in this region, one following the other in rapid succession. The lower division of the canal was repeatedly damaged until this increase of expense became very embarrassing. Nor were they able to make these repairs without the aid of temporary loans obtained from the banks.

After the execution of the contract for the completion of the canal, two of the original contractors of the co-partnership withdrew and Thomas G. Harris, of Washington County, Maryland, went in with the

remaining two — James Hunter, of Virginia, and William B. Thompson, of the District of Columbia. The new firm was called "Hunter, Harris and Co." In November, 1847, the contract was greatly modified; the time for the completion was extended, specific changes in the plan of construction were made, and certain portions of the work were entirely dispensed with — all this with a view to a saving of cost, which was absolutely necessary. Under the new contractors' management operations were quickly resumed, but, prosecuted under such constant embarrassment, again ceased March 11, 1850. The contractors made great sacrifices in their sales of the bonds, and, although stimulated to perseverance in the honest expectation of completing the canal, they had previously abandoned all hope of profit, and found the pressure too great to continue. This suspension, however, lasted but a few days. Hunter, Harris, and Company made an assignment of their interest in the contract to two of their agents and attorneys, for the benefit of their creditors, and the work was recommenced and continued until July, 1850,

when it was again abandoned because of the usual lack of means. Upon the seventeenth of July the board of president and directors formally declared the canal abandoned and on the following day entered into a new contract with Michael Byrne, of Frederick county, for the completion of the canal to Cumberland. The work remaining to be done was inconsiderable, yet tedious, consisting of numerous unfinished portions between Dam No. 6 and Cumberland. This work was promptly commenced and diligently prosecuted, and the canal was opened for navigation purposes, and through trade commenced, on October 10, 1850. Mr. Byrne continued to press forward the work, which did not interfere with the passage of the boats, and on February 17, 1851, the final payment was made to him under the provisions of the contract. From this time the completion of the Chesapeake and Ohio Canal may be dated.

From the clerk's statement made from the books of the company, with an additional allowance for a few small unsettled claims, it appears that "the cost of the

Chesapeake and Ohio Canal, from the mouth of the Tyber in the city of Washington, to the town of Cumberland, a distance of one hundred and eighty-five and seven tenths miles, for construction, engineer expenses, lands, and other contingencies properly applicable to construction, amounts, in the aggregate, to the sum of $11,071,176.21, or $59,618.61 per mile." It is interesting to note that the original estimate for a canal of less dimensions, made by the experienced General Bernard in 1826, was $8,177,081.05, or $43,963 per mile. This estimate did not embrace land purchases or condemnations nor make any provision for contingencies with the exception of an allowance of $157,161 for fencing, which, in the statement of cost, is included under the head of lands. Therefore, in order to make a just comparison between the original estimate and the actual cost of the canal there should be added to General Bernard's estimate the cost of those items which are excluded from it, and included in the clerk's statement, after deducting the amount for fencing already embraced in the estimate.

Bernard's estimate, exclusive of land purchases, condemnations and contingencies	$8,177,081.05
Add the items excluded, viz., actual cost of lands, deducting therefrom $157,161, for fencing, already embraced in the estimate	267,562.91
Engineer expenses	429,845.94
Incidental damages	28,870.09
Pay of officers, say	80,000.00
Total	$8,983,359.99
Aggregate actual cost, as per clerk's statement	11,071,176.21
Excess of actual cost over original estimate, with the above additions — twenty-three and one-fifth per cent, or	$2,087,816.22

It is rather a difficult undertaking to give a brief yet succinct and accurate history of the old waterway since 1850. In a nutshell, the history of the Chesapeake and Ohio Canal from its completion to 1889 may truthfully be said to be a history of the Democratic party in the state of Maryland during that period. It was used as a political machine and lever by that party at the expense of its physical and financial good. The officers of the company were appointed by the Board of Public Works of the state, some of whom were ex officio members of the board of directors. The members of the Board of Public Works were appointed by the governor of the state, and in that way the management of the canal was controlled by the party in power, which, during that period, was the Democratic party. There was much litigation in an effort by some of the holders of bonds to protect themselves, but it was always unsuccessful. Mr. Gorman, now Senator A. P. Gorman, was president for a number of years. It is an open secret throughout the state that it was on the placid waters of the Chesapeake and Ohio Canal that the

senator rode into the high dignity of a Senatorial seat. The canal was in every way a financial failure and paid nothing to the holders of its debentures. There are today thousands of dollars of unpaid wages, due for labor and material supplied. It has cost the state of Maryland millions of dollars, none of which are likely to ever find their way back to the state coffers. Conducted upon an economical and business-like basis, it should have been a source of revenue.

The disastrous floods of 1889 caused such damage to the waterway that a large sum was required to restore it. The state refused further financial aid and, in consequence, the canal lay abandoned. The Democratic politicians of the state, many of whom were interested in the West Virginia Central Railway, made an effort, through an act passed in Maryland legislature, to sell the valuable property and its franchises to that rail road for a nominal price; in fact were on the point of disposing, for about two hundred thousand dollars, of a property worth millions. After the passage of the act and its signature by the

A VIEW OF THE CHESAPEAKE AND OHIO CANAL

[*This part of the canal, at the entrance of the tunnel thirty miles east of Cumberland, shows the expensive nature of portions of the work*]

governor, the holders of the bonds which were authorized to be issued in 1844, and which were issued in 1848, stepped in. When these bonds were authorized there were already so many liens upon the canal that it was a well-known fact that no market would be found for them. Realizing this fact, the state, to give them a value, waived its rights, under previous issues and loans, as we have seen, in favor of these bonds about to be put upon the market, and also securing them by a mortgage on the tolls and revenues of the canal. The holders of these bonds arose and petitioned the courts to protect them, claiming that a sale of the canal to the rail road would destroy the corpus, and that with the corpus destroyed, the toll and revenue earning capacity would cease. In other words they claimed that a mortgage on the tolls and revenues constituted a mortgage on the corpus. They further petitioned that the court appoint trustees to operate the canal for the bondholders of 1848, thereby enabling them to have an opportunity to protect themselves. The case was bitterly fought in the courts and

ended finally by the granting of the petition. Trustees were appointed for a term of four years to show what they could do. Then the canal was repaired, at a cost of over half a million dollars. In 1891 traffic was resumed and has been going steadily on since that time. That the court is evidently satisfied with the showing made by the trustees is attested by the fact that, at the expiration of the four years originally granted (in which to show that they could run the canal successfully) the court granted an extension of that time for four years more, and at the expiration of the latter grant, further increased it four years, and so on.

The Canal is now, as it has been since 1891, operated by the trustees, under mortgage of Chesapeake and Ohio Canal Company, dated June 5, 1848.

CHAPTER IV

THE PENNSYLVANIA CANAL AND ITS SUCCESSOR

THE great early trade route through Pennsylvania in the days of the pack-horse and "Conestoga" wagon has been outlined in previous volumes of this series.[81] By means of Forbes's Road the metropolis of the United States at the beginning of the nineteenth century, Philadelphia, was in close connection with the metropolis of the Ohio Basin, Pittsburg. The rivalry with Baltimore had been keen, and the Philadelphia merchants were eager to overcome their handicap of nearly one hundred miles, by internal improvements of a most advanced pattern. In the matter of roads, liberal as had been Pennsylvania's policy, Maryland was far ahead, so far as the West was concerned. And in 1806, when a national road across

[81] *Historic Highways of America*, vols. v, xi, xii.

the Alleghenies was proposed, and a Maryland (Cumberland) route was chosen by the commissioners appointed by President Jefferson, it seemed probable that Maryland's lead in the matter of trade was about to be materially increased.

But Pennsylvania, as we have seen, had been an early promoter of inland navigation; its "Society for promoting the improvement of roads and inland navigation" in 1791, had called specific attention to the rivers which should be made important routes of an expanding commerce. Among the most important recommendations of this society was that looking to the improvement of Pennsylvania's great western waterway, the Susquehanna River and its tributary, the Juniata. This latter stream interlocked, beyond the Allegheny crest, with the roaring Conemaugh, a tributary of the Kiskiminitas and Ohio. And in response to this appeal we have seen that £5,250 was appropriated to the improvement of Susquehanna navigation from Wright's Ferry to the mouth of Swatara Creek. As Philadelphia was the commercial center, the route thence by water

was first up the Schuylkill, then across by canal to the Susquehanna. It was outlined as follows in the society's memorial, signed by Robert Morris, February 7, 1791:

	Miles	*Chains*
Up Schuylkill to the mouth of Tulpehocken	61	00
Thence up Tulpehocken to the end of the proposed canal	37	09
Length of the canal	4	15
Down Quitipahilla to Swatara	15	20
Down Swatara to Susquehanna	23	00
Up Susquehanna to Juniata	23	28
Up Juniata to Huntingdon	86	12
From Huntingdon, on Juniata, to the mouth of Popular run.	42	00
Portage to the Canoe Place on the Conemaugh	18	00
Down Conemaugh to Old Town at the mouth of Stoney Creek	18	00
Down Conemaugh and Kiskeminetas to Allegheny	69	00
Down Allegheny river to Pittsburgh on the Ohio	29	00
Total	426	04[82]

The progress of Virginia and Maryland in connection with the Potomac Company and the opening of the Potomac River was felt in Pennsylvania at this time. "For,

[82] *An Historical Account . . of Canal Navigation in Pennsylvania* (Philadelphia, 1795), p. 3.

in the firſt place," read this memorial, " if we turn our view to the immenſe territories connected with the Ohio and Miſſiſſippi waters, and bordering on the great lakes, it will appear from the tables of diſtances, that our communication with thoſe vaſt countries (conſidering Fort Pitt as the port of entrance upon them) is as eaſy and may be rendered as cheap, as to any other port on the Atlantic tide waters. The diſtance from Philadelphia to the Allegheny, at the mouth of Kiſkeminetas, is nearly the ſame as from the mouth of Monongahela to George Town on Potomac; and ſuppoſing the computed diſtances from Pittſburgh to the Dunkard Bottom to be juſt, and the navigation of Cheat river, on the one hand, and the Potomack, at the mouth of Savage river, on the other, to be, at all ſeaſons of the year, equal to the navigation of the Kiſkeminetas, Conemaugh and Juniata; yet as the portage from Dunkard Bottom to the Potomack, at the mouth of Savage river, is thirty-ſeven miles and a quarter, and the portage from Conemaugh to Juniata only eighteen miles (which may be conſiderably ſhortened by

locks) there can be no doubt but that the tranſportation of all kinds of goods and merchandize from Philadelphia to Pittſburgh may be at a much cheaper rate than from any other ſea port on the Atlantic waters."

It mattered not where it was, every one of the Atlantic seaboard cities had an expert who could show in black and white that that particular port was in closest touch with Pittsburg and the West. Washington had done so, conclusively to all Southerners; Morris does it here to the satisfaction of Pennsylvanians, and New York had a score of mathematicians who could prove the same thing concerning New York, and the Hudson and Mohawk route.

"This is not mentioned," continues the memorial, hopefully, "with a view to diſparage the internal navigation of our ſiſter ſtates, more eſpecially *Maryland* and *Virginia*. We admire their noble exertions. . . But, although a conſiderable part of the ſettlers on the Ohio waters may be accommodated by the Potomack navigation, and the ſtate of Pennſylvania

may only have a ſhare in the trade of thoſe waters; yet there remains to us the immenſe trade of the lakes, taking Preſqu'Iſle, which is within our own ſtate, as the great mart or place of embarkation." [83]

It is exceedingly interesting to note that while Pennsylvania at this time only expected to share with her southern neighbors the trade of the Ohio Basin, she expected a monopoly of the trade on the Great Lakes. Of the latter trade she secured only a fraction, while of the former she secured practically a monopoly for half a century.

The route is more carefully outlined in the memorial: "It connects Philadelphia with Pittſburgh and all the Ohio waters, by the Schuylkill, the Swatara and Juniata branches of Suſquehanna, and the Kiſkeminetas branch of Allegheny, with the diſtance of five hundred and ſixty-one miles and an half . . and alſo Philadelphia and Preſqu'Iſle, uſing the ſame waters . . to the mouth of Kiſkeminetas, and then by the eaſy waters of Allegheny and French Creek. In this whole communication to

[83] *Id.*, pp. 7–8.

Pittsſburgh, there are only eighteen miles portage between the Juniata and Conemaugh . . and only the addition of fifteen miles and an half more at the portage from Le Bœuf to Preſqu'Iſle, which portage is, likewiſe, included in both the other communications. In this ſtatement of portages, it is ſuppoſed that the canal or lock navigation between the heads of Tulpehocken and Quitipahilla, is to be compleated; but if that work ſhould be thought too great to begin with, it will be only the addition of four miles portage, by an excellent and level road."

For many years the problem of the navigation of this westward waterway was the subject of discussion and legislation. In no case does any state seem to have profited by the experience of any other. New York, Pennsylvania, Virginia, and Maryland each boldly attacked the problem of the improvement of their rivers, the Mohawk, Juniata, and Potomac, without in the least profiting by the experience of the others. It was New York which first broke away from the old ideas, upon which millions of dollars had been squandered,

and built her Erie Canal, which soon turned doubt and derision into a vast tumult of applause. Yet it must be remembered that the New York canal had an easy path to follow. The Mohawk was not the wild Potomac as known in bleak Hampshire County, nor Wood Creek the racing Conemaugh or upper Youghiogheny. The wet flats of the "Genesee Country" offered a different prospect for canal engineers from that to be viewed in Kittanning Gorge where only the eagles lived. The Erie Canal conquered, by means of locks, 500 feet in 360 miles; the Chesapeake and Ohio Canal faced the problem of overcoming 2754 feet in 340 miles, and the Pennsylvania Canal, 2291 feet in 320 miles. It is not to be wondered at, then, that New York found a water connection with the West first. And yet the fact remains that much was spent on the Mohawk before the Erie Canal was begun.

So the struggle went on in Pennsylvania for nearly a generation until at last the success of the Erie Canal and the failure of the improved unnavigable rivers gave birth

to the Pennsylvania Canal.[84] On March 27, 1824, an act of the Pennsylvania legislature authorized the appointment of a board of canal commissioners to view and explore routes for a canal from Harrisburg to Pittsburg. The commissioners, Colonel Jacob Holgate, James Clark, and Charles Treziyulney, were appointed March 31. From May until December they were in the field. Their exploration resulted in the following estimate of the height to be overcome between the Susquehanna[85] and Ohio:

	Rise (feet)
Harrisburg (mouth of Juniata) to head of Juniata	589
Head of Juniata to proposed tunnel	945
Tunnel level to summit of mountain	754
Susquehanna to mountain summit	2288

[84] One of the most enlightening broadsides of the time treating of the delay of the internal improvement plan is Turner Camac's *Facts and Arguments respecting the great Utility of an extensive plan of Inland Navigation in America* (Philadelphia, 1805).

[85] The canal was proposed to begin on the Schuylkill and lead to the Susquehanna, but it actually began on the Susquehanna, the country between that point and Philadelphia being covered by the old Union Canal and the Columbia Railway which was soon built.

The tunnel at summit level was as long as that one proposed on the Chesapeake and Ohio Canal, and gave rise to great discussion. One commissioner, Treziyulney, whose name gave weight to his opinion, disagreed with his associates on the matter of the tunnel, and, in fact, on the entire canal proposition. The majority report having been made to the governor of Pennsylvania February 2, 1825, this minority report was dated February 21. "In short," it read, "the whole country, from the upper forks of the Juniata to the forks of the South branch of the Conemaugh, is mountainous; mountain rising after mountain in quick succession. The main one where the proposed tunnel is to pass, is hemmed in and surrounded by other high mountains, with steep slopes separated from one another by narrow ravines and presenting no favorable situation for canaling, either by lockage or tunneling. Here nature has refused to make her usual kind advances to aid the exertions of man; mountains are thrown together, as if to defy human ingenuity, and baffle the skill of the engineer." The

difference of opinion caused much debate and conjecture as to the practicability of the great plan.

Another cause of delay was the agitation which was now sweeping all thinking minds on the question of the new roads of (literally) iron and steam as a motive power. Such had been the progress of railways in England that it was believed by many that this method of locomotion would supersede all others. On February 5, 1825, the Pennsylvania senate granted the wish of the advocates of railways by appointing a commission to inquire into the possibility of building a railway from Philadelphia to Pittsburg. Three editions of a pamphlet, *Facts and Arguments in favor of adopting railways in preference to Canals in the State of Pennsylvania*, were published in Philadelphia this year. It maintained that a railway could be built from Philadelphia to Pittsburg in one-third the time it would take to build a canal and at one-third the cost; it would, moreover, be available almost the entire year, whereas the Erie Canal was navigable only two hundred and twenty days in the year. It urged that

more persons would be required in the operation of a canal than a railway, and that the tolls would be higher on the former than on the latter. "If a railway, or even a canal, existed between Pittsburg and Philadelphia, New Orleans would not requite the consideration of a moment. The great distance of this port from Kentucky, Indiana, Ohio, and Pennsylvania; in winter the ice in the Ohio river . . the numerous sawyers, snags &c. . . the length of the voyage . . are powerful objections to this port. . . Baltimore presents itself as the second rival. . . But when the Pennsylvania railway shall be constructed, Baltimore cannot for a moment withstand the competition of the enormous capital of Philadelphia. She may, indeed, construct a canal or a railway . . but little is to be apprehended, as the length and expense of constructing these works will be far greater than those contemplated in Pennsylvania. New York is the third rival . . but the communication between New York and Pittsburg must be effected by a long, tedious, and expensive

voyage, *requiring four changes of vessels. . . The route of nearly 800 miles* [via Buffalo, Lake Erie, and the Allegheny River] *will be very circuitous; and will be impracticable five months every year. . .* It does not require the voice of prophecy to predict *that the period is not far distant when the New York canal will be superseded by a railway.*"[86]

Thus was the question of rivalry between the Atlantic ports stated by a railway exponent of 1825; and the statements must be considered extremely prophetic. The railway commission was appointed too far ahead of the times, but it had a forward influence, and by the act of April 11, the canal commissioners were authorized to have all routes across the Alleghenies surveyed, and in June of the year following the Juniata route was announced to be the preferable route in the commission's report to the governor of Pennsylvania; the tunnel, however, was considered impossible for the same reason as with the tunnel between the heads of Savage and Youghiogheny Rivers in western Virginia — the

[86] *Facts and Arguments*, pp. 57–58.

difficulty of supplying water at the summit level. In the place of a tunnel, inclined planes were proposed by the commission.

Evidently anticipating this report, the Pennsylvania legislature passed an act for the construction of the Pennsylvania Canal at the expense of the state; and it was approved by Governor Shulze, February 25, 1826. It read:

AN ACT TO PROVIDE FOR THE COMMENCEMENT OF A CANAL, TO BE CONSTRUCTED AT THE EXPENSE OF THE STATE, AND TO BE STYLED THE PENNSYLVANIA CANAL.

Whereas, The construction of a canal within our own limits, for the purpose of connecting the eastern and western waters, is believed to be practicable, and within the means of the state, and its speedy completion will advance the prosperity, and elevate the character of Pennsylvania, and by facilitating intercourse, and promoting social interests, will strengthen the bands of the Union; *And whereas*, There are important sections of the work which may be immediately begun without the danger of error:

Therefore,

Section 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met,* That the commissioners appointed by the act, entitled, "An act to appoint a board of canal commissioners," passed the 11th April, 1825, are hereby authorized and empowered, in behalf of this state, immediately to locate and contract for making a canal, and locks, and other works necessary thereto, from the river Swatara to the mouth of the river Juniata, and also from Pittsburg to the mouth of the Kiskiminetas.

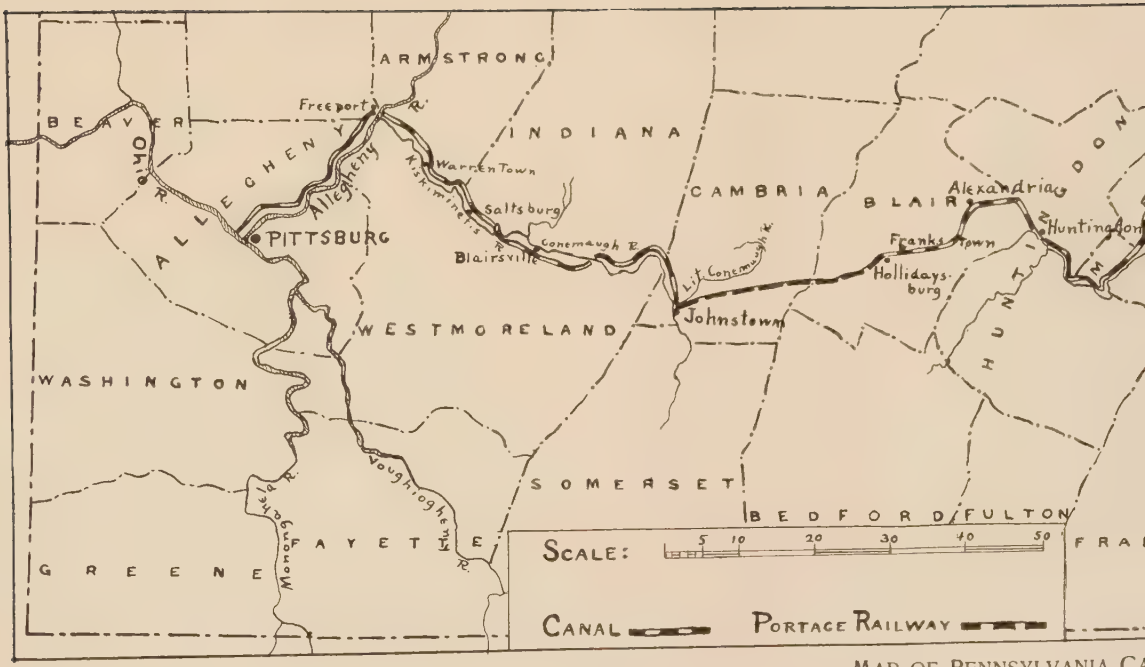
Section 2. *And be it further enacted by the authority aforesaid,* That the said commissioners shall be authorized to appoint one or two of the board, as occasion may require, as acting commissioner or commissioners, who shall receive —— dollars per day, while actually engaged in the superintendence of the works contemplated by this act.

Section 3. *And be it further enacted by the authority aforesaid,* That the said board shall appoint a treasurer, and shall have power to appoint engineers, clerks, and

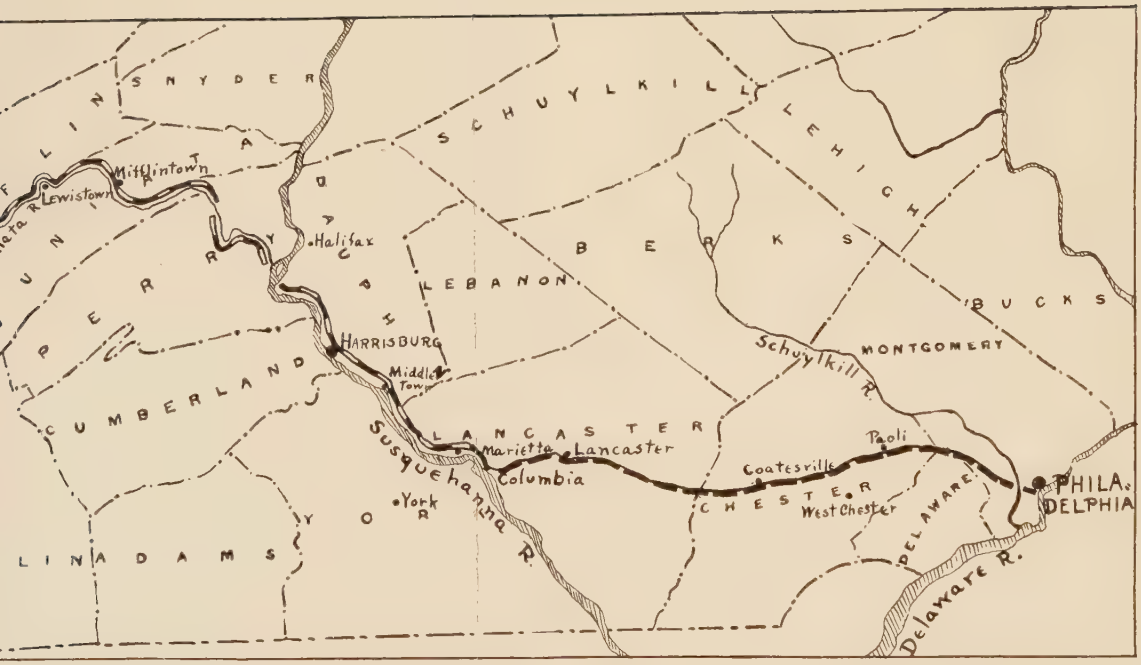
other officers, toll-gatherers, and such other agents as they shall judge requisite, and to agree for, and settle their respective wages, and to establish reasonable toll. *Provided*, That the treasurer shall give bond in such penalty, and with such security, as the said board shall direct, for the true and faithful discharge of the trust reposed in him.

Section 4. *And be it further enacted by the authority aforesaid*, That the location and dimensions of the said canals and locks shall be determined by a majority of the board, with the approbation of a skilful engineer, and with the consent of the Governor.

Section 5. *And be it further enacted by the authority aforesaid*, That it shall and may be lawful for the said board, or a majority of them, to agree with the owners of any land, through which the said canal is intended to pass, for the purchase, use and occupation thereof, on behalf of the state, and in case of disagreement, or in case the owner thereof shall be a feme covert, under age, non compos, or out of the state or county, on application to a justice of the



MAP OF PENNSYLVANIA CA



AL AND PORTAGE RAILWAY

county in which such land shall be, the said justice of the peace shall issue his warrant, under his hand, to the sheriff of the county, to summon a jury of eighteen inhabitants of his county, not related to the parties, or in any manner interested, to meet on the land to be valued, at a day to be expressed in the warrant, not less than ten nor more than twenty days thereafter; and the sheriff, upon receiving the said warrant, shall forthwith summon the said jury, and when met, shall administer an oath or affirmation to every juryman who shall appear, being not less than twelve in number, that he will faithfully, justly and impartially value the land, and all damages the owner shall sustain by cutting the canal through such land, or the partial or temporary appropriation, use or occupation of such land, according to the best of his skill and judgment, and that in such valuation he will not spare any person, for favor or affection, or any person grieve for malice, hatred or ill will; and in every such valuation and assessment of damages, the jury shall be, and they are hereby instructed to consider in determin-

ing and fixing the amount thereof, the actual benefit which will accrue to the owner, from conducting the said canal through, or erecting any of the said works upon his land, and to regulate their verdict thereby, except that no assessment shall require any such owner to pay or contribute any thing where such benefit shall exceed, in the estimate of the jury, the value and damages ascertained as aforesaid; and the inquisition thereupon taken, shall be signed by the sheriff, and some twelve or more of the jury, and returned by the sheriff to the clerk or prothonotary of his county, and unless good cause be shown against the said inquisition, it shall be affirmed by the court and recorded; but if the said inquisition should be set aside, or if from any cause, no inquisition shall be returned to such court within a reasonable time, the said court may at its discretion, as often as may be necessary, direct another inquisition to be taken in the manner above described, and upon every such valuation, the jury is hereby directed to describe and ascertain the bounds of the land by them valued, and the quality and

duration of the interest and estate in the same, required by the said board for the use of the state, and their valuation shall be conclusive on all persons, and shall be paid for by the said board, to the owner of the land, or his legal representatives; and on payment thereof, the state shall be seized of such lands, as of an absolute estate in perpetuity, or with such less quantity and duration of interest or estate in the same, or subject to such partial or temporary appropriation, use or occupation as shall be required and described as aforesaid, as if conveyed by the owner, and whenever, in the construction of the said canal, or any of the works thereof, locks, dams, ponds, feeders, tunnels, aqueducts, culverts, bridges or works of any other description whatsoever appurtenant thereto, it shall be necessary to use earth, timber, stone or gravel, or any other material to be found on any of the lands adjacent or near thereto, and the said board or their agent cannot procure the same for the works aforesaid, by private contract of the proprietor or owner, or in case the owner should be a feme covert, non compos, or

under age, or out of the state or county, the same proceedings in all respects shall be had as in the case before mentioned, of the assessment and condemnation of the lands required for the said canal, or the works appurtenant thereto.

Section 6. *And be it further enacted by the authority aforesaid,* That every person actually engaged in labouring on any canal authorized by law, shall be exempt from doing militia duty in this state, except in cases of insurrection or invasion, during the time when he is so actually engaged; and the certificates of the contractor who shall employ such men, so liable to perform militia duty, in the performance of their contracts shall be *prima facia* evidence of such engagement.

Section 7. *And be it further enacted by the authority aforesaid,* That the sum of three hundred thousand dollars be, and the same is hereby appropriated, to be paid by the state treasurer, in such sums as shall be required for the execution of the work, which sums shall from time to time be paid into the hands of the treasurer of the board

by direction of a majority of the board, and by warrant of the Governor.

The method of joining the two divisions of what now became known as the Pennsylvania Canal was left undecided, pending further investigation. But an act of March 24, 1828 authorized the location and construction of the Juniata division, from Lewistown to the highest practicable point on the river. Eventually Hollidaysburg on the eastern slope of the Alleghenies, and Johnstown, on the western, were decided upon as the termini of the eastern and western divisions of the canal. The thirty-six miles intervening were to be crossed by a railway, through Blair's Gap, of the inclined planes previously suggested.

The interminable delays and postponements which have been described on the Chesapeake and Ohio Canal were unknown in the present instance. What was known as the central division (there being really no eastern, though the Union Canal was such nominally) was begun at Columbia on the eastern shore of the Susquehanna, July

4, 1826, and was opened to Duncan's Island, above Harrisburg, in 1830. This central section also extended across the Susquehanna and up the Juniata Valley; it was begun in 1827 and completed to Huntingdon in 1830, and Hollidaysburg in 1834. The western division of the canal extended from Pittsburg to Johnstown; it was begun in 1826 and opened in 1830.[87]

From Huntingdon on the east to Johnstown on the west of the mountains was planned the Allegheny Portage Railroad, which from any point of view must be considered one of the most interesting and remarkable of all attempts to abridge distance in our early history.

The history of the divisions of the Pennsylvania Canal on either side of the mountains is commonplace beside this interesting and daring bit of engineering. Inclined planes were not, at this time, a novelty, but their use as proposed now in the Alleghenies was

[87] For this and many additional items of information concerning the greater problem of Pennsylvania's entire system of canals, see Theodore B. Klein's monograph "The Canals of Pennsylvania and the System of Internal Improvements," *Report Pennsylvania Secretary of Internal Improvements, 1900.*

such an advance on former instances that it was considered a bold experiment. The Morris Canal between the Hudson and Delaware "is peculiar," wrote the British engineer Stevenson, in 1837, "as being the only canal in America in which the boats are moved from different levels by means of inclined planes instead of locks. The whole rise and fall on the Morris Canal is 1557 feet, of which 223 feet are overcome by locks, and the remaining 1334 feet by means of twenty-three inclined planes, having an average lift of 58 feet each. . . The car [on which canal boats ascend and descend] . . consists of a strongly made wooden crib or cradle . . on which the boat rests, supported on two iron waggons running on four wheels. When the car is wholly supported on the inclined plane, or is resting on the level, the four axles of the waggons are all in the same plane . . ; but when one of the wagons rests on the inclined plane, and the other on the level surface, their axles no longer remain in the same plane, and their change of position produces a tendency to rock the cradle, and the boat which it sup-

ports; but this has been guarded against in the construction of the boat-cars on the Morris Canal by introducing two axles . . on which the whole weight of the crib and boat are supported, and on which the waggons turn as a centre. The cars run on plate rails laid on the inclined planes, and are raised and lowered by means of machinery driven by water wheels. . . The railway, on which the car runs, extends along the bottom of the canal for a short distance from the lower extremity of the plane; when a boat is to be raised, the car is lowered into the water, and the boat being floated over it, is made fast to the part of the framework which projects above the gunwale. . . The machinery is then put in motion; and the car bearing the boat, is drawn by a chain to the top of the inclined plane, at which there is a lock for its reception." [88]

The building of such inclined planes on the Allegheny Portage Railway from Hollidaysburg to Johnstown marks the first conquest of that thousand mile summit

[88] *Sketch of the Civil Engineering of North America*, pp. 128–129.

line of the Alleghenies. For fifty years, in the infancy of engineering, American promoters had been struggling with this problem; it is a far cry — measured by the hosts of futile plans and dreams — from Washington, pushing his horse through the dripping laurels along "McCullough's Path," to Sylvester Welch who spanned Blair's Gap by a railway; then, and not until then, was a passage-way from the Atlantic seaboard to the Mississippi Basin open for freight and passengers on which neither freighter nor coach played any part. The building of the Allegheny Portage Railway, 1830–33, was as epoch-making an event as the opening of the Cumberland Road in 1818 or the opening of the great trans-Allegheny railways at the middle of the century. In many ways it was more significant than the opening of the Erie Canal, which was merely a lengthy application of a principle already perfectly understood. Considering the coach and wagon to have been natural means of communication, we can then say that the Portage Railway was the first artificial means of communication between the East and

the Mississippi Basin. Well did Mr. Stevenson say that in boldness of design and in difficulty of execution this railway could be compared with no modern work he had seen, unless exception be made for the passes of the Simplon and Mount Cenis in Sardinia; and these, as engineering works, did not impress him as more wonderful.

The project had been proposed early in the history of the canal and in 1826 the experienced Erie Canal engineer Canvass White delivered an opinion that the plan was feasible, but added that a portage wagon road would perhaps answer temporary needs. As the canal building advanced in the valleys on either side of the mountains, the plan of a connecting link which would satisfactorily mount the towering crest which intervened was seriously debated. Late in 1828 Moncure Robinson became engineer in charge and went into the field in 1829 with plans well developed; in November he reported to the board of canal commissioners that the crest could best be overcome by a system of inclined planes, with stationary engines; near the

summit, a tunnel a mile in length was planned to pierce the crest one hundred and seventy-seven feet beneath its summit and twelve hundred and sixty-four feet above Hollidaysburg, the starting point of the inclines. The total cost for a railway thirty miles in length, of the pattern described, was estimated at slightly less than a million dollars ($936,004.87). On June 8, 1830 a board of engineers consisting of Robinson, Lieutenant-colonel S. H. Long, and Major John Wilson was appointed to survey the route proposed and make final recommendations. Late in that year a report was made which conformed largely with Mr. Robinson's plan matured in 1829, and on March 21, 1831, Governor Wolf approved "An act to continue the improvement of the State by canals and railroads." Section 3 of that act read:

"*And be it further enacted by the authority aforesaid,* That the said canal commissioners shall commence forthwith and prosecute without delay, a rail road over and across the Allegheny mountains, from the basin at Hollidaysburg, in the county of Huntingdon, to Johnstown, in the county of Cam-

bria, a distance of about thirty eight miles, according to the extent, route and plan thereof, stated in their report of the twenty-first day of December, one thousand eight hundred and thirty, excluding the plan of a tunnel as recommended by Moncure Robinson in his report of the twenty-first November, one thousand eight hundred and twenty-nine; and also, that they shall commence and prosecute, without delay, the extension of the Juniata division of the Pennsylvania canal, from the town of Huntingdon, in the county of Huntingdon, to the basin at Hollidaysburg, in the same county, either by canal or slack water navigation; towards the expenditures of which rail-road and canal or slack water navigation, as specified in this section, during the present year, the sum of seven hundred thousand dollars is hereby specifically appropriated, to be paid out of the loan hereinafter mentioned." [89]

The great work was now actually begun. Sylvester Welch, formerly superintendent of the western division of the canal,

[89] *Laws of Pennsylvania*, 1830–31, no. 104 (p. 195).

was made principal engineer, and Mr. Robinson consulting engineer; Samuel Jones was superintendent. The final surveys were conducted from Johnstown to the mountain summit beginning in April; they were completed by May 20, 1831, and the work let to the lowest bidders at Ebensburg May 25. The surveys on the eastern slope of the mountain were conducted from Hollidaysburg and were completed in the July following. The contracts were let at Hollidaysburg on July 29.[90]

The termini of the road were at the canal basins at Hollidaysburg and at Johnstown, the former 1,398 feet below the mountain summit, and the latter 1,771 feet below the summit. The road occupied a clean swath through the forests, of one hundred and twenty feet in width, lest fall-

[90] These, as well as many preceding and succeeding data, are from William Bender Wilson's admirable monograph, "The Evolution, Decadence, and Abandonment of the Allegheny Portage Railroad" in the *Annual Report of the Secretary of Internal Affairs of the Commonwealth of Pennsylvania*, 1898–99, part iv, pp. xli–xcvi. This monograph forms an important chapter in Mr. Wilson's *History of the Pennsylvania Railroad Company*.

ing trees should damage the work. All surveys, estimates and recommendations to the contrary notwithstanding, Mr. Robinson's tunnel was not now built, another plane being added to the total which enabled the railway to vault the summit. The planes were ten in number; beginning at Johnstown they were as follows:

		Length (feet)	*Elevation (feet)*
Plane No.	1	1,607.74	150.00
	2	1,760.43	132.40
	3	1,480.25	130.50
	4	2,194.93	187.86
	5	2,628.60	201.64
	6	2,713.85	266.50
	7	2,655.01	260.50
	8	3,116.92	307.60
	9	2,720.80	189.50
	10	2,295.61	180.52

There were six levels between the planes on the western division and five on the eastern. The level between Johnstown and the foot of Plane No. 1 was four miles in length, and that between Planes 1 and 2 was thirteen miles in length, overcoming an elevation of 189.58 feet. The

THE FIRST AMERICAN TUNNEL

[*By this tunnel the Allegheny Portage Railway crossed the summit of the mountains*]

remainder on that division were about a mile in length, each rising about twenty feet. The shortest level on the eastern slope was .15 of a mile and the longest 3.72 miles, descending 146.71 feet. The steepest incline rose only 10¼ feet in a hundred — a grade not much steeper than that on many pioneer roads. Mr. Welch affirmed that cars could be drawn up these by horses or by stationary steam or horse-power engines. On the eastern planes he suggested that advantage be taken of the force of gravity; on three of the levels, those at each terminus, and the thirteen mile level between Planes 1 and 2, he urged the use of locomotives; elsewhere he advised the use of horse power. The road (single track) was completed by the beginning of 1834 and traffic began March 18, 1834. The ten planes were supplied with ten stationary engines. Half a century ago, Washington, in that classic appeal to Harrison, of 1784, maintained that a great plan of communication between the East and West was practicable, in that "The western inhabitants would do their part towards its execution. Weak as they are,"

he said, "they would meet us half way." What a splendid comment it is on Washington's wisdom and foresight to record that these engines on the Allegheny Portage Railway, which hauled the first load of freight over the Alleghenies which ever crossed them by artificial means were made in the young West — in Pittsburg! Washington, at least, did not misjudge in the least the spirit of those Virginians and Pennsylvanians who in his day were pushing ahead over Indian trails into the lands beyond the mountains.

The second track of the railway was put under contract at Hollidaysburg May 31, 1834. In the same year three locomotives for the levels were ordered, one from Boston, and two from Newcastle, Delaware. One of these was sent on to Pittsburg by canal to serve as model of others to be built there. "The road as completed," writes Mr. Wilson, "showed a width of track between rails of 4 feet and 9 inches, and a distance between tracks, including width of inner rail of each track, of 5 feet. The railway between the planes was laid to correspond vertically with the grade

adopted for the road, and was in all cases laid to form horizontal arcs of circles, or their tangents. Flat iron bars on wooden rails were placed on the inclined planes. On the balance of the road, edge rails 18 feet in length, weighing 39½ pounds to the yard were laid, resting in iron chairs on wooden sills. The latter were fastened to cross ties where the road passed over high embankments, but, on solid ground they were attached to stone blocks measuring about 3½ cubic feet. To do this two holes were drilled into each block. Into these holes oak plugs were driven. The cast-iron chair was placed directly upon the top of the stone block, and spikes driven through holes in the flanges of the chair into the oak plugs. The rail was a double headed rail, and held in place by a wedge. The difficulty of the spreading of the tracks was at first overcome by substituting for each alternate pair of blocks a stone block some 7 feet long, extending across the track, and having a chair at each end. This was found to be too expensive, and wooden cross ties were placed between each pair of stone blocks."

The road as opened was, like the original Baltimore and Ohio Rail Road, merely a new sort of road-way, on which horses drew cars on rails (instead of on a flat road-bed) between the inclines. A rush of business at once overwhelmed the road. Between the middle of March and the middle of April, 1834, the number of cars tripled in number and were then entirely inadequate to the trade. Much "portaging" was done in the old way on the old-time portage path by wagon. The business was done by transportation firms or by individuals, the commonwealth furnishing the road-bed, and a motive power only on the inclined planes.

It was in October, 1834, that the keel-boat "Hit or Miss" from the Lackawanna, Jesse Crisman owner and Major C. Williams commander, first of all craft to leap the Alleghenies, was taken from Susquehanna waters at Hollidaysburg and laid safely in Allegheny waters at Johnstown. Crisman expected to sell his boat at Hollidaysburg — as his ancestors had ever done; but John Dougherty of the Reliance Transportation Line, constructed a car calculated

to bear "the novel burden." Starting at noon, "they rested at night on the top of the mountain, like Noah's Ark on Ararat, and descended the next morning into the Valley of the Mississippi, and sailed for St. Louis." [91] It was fifty years, to the month, since the pioneer promoter of trans-Allegheny communications, Washington, was searching in Dunkard Bottom for a pathway for keel-boats across this great divide. History was again repeated; as in the old days when, in 1758, Forbes's Road through Pennsylvania eclipsed Virginia's highway which Washington championed, Braddock's Road, because it was a more direct route from the heart of colonial life to the Ohio Basin, so now Pennsylvania's waterways, joined by a portage railway of only thirty-eight miles in length, eclipsed any and all other possible water routes to the Ohio Valley by being actually opened to commerce. These repetitions of history illustrate Pennsylvania's keystone position in the United States, so far as the seaboard and the commercial centers

[91] Sherman Day's *Historical Collections of the State of Pennsylvania*, p. 184.

of the Mississippi Basin are concerned.

Though exceptionally interesting and suggestive, the Allegheny Portage Railway was only a link in a chain. The two great canals, in the valleys of the Juniata and Conemaugh were the greater links; a horse-car rail road was laid from Philadelphia to Columbia on the Susquehanna and this, soon supplied with locomotives, became the eastern link in the chain of communication of which the Pennsylvania Canal was the important part. By 1835 the complete system was in operation between Philadelphia and Pittsburg; a table of distances will be interesting:[92]

THE PENNSYLVANIA ROUTE IN 1835

Division No. 1

Columbia Rail Road

	Miles from Philadelphia
Fair Mount Water Works . .	1
Viaduct over Schuylkill River .	3

[92] H. S. Tanner's *A Brief Description of the Canals and Rail Roads of the United States* (November, 1834), pp. 25–26.

Paoli	20½
Downingtown	32
Coatsville	40
Mine Ridge	52½
Lancaster	69½
Mt. Pleasant	76½
Columbia	81¾

Division No. 2

Central Division of the Pennsylvania Canal

	Miles from Philadelphia
Marietta	84¾
Bainbridge	91¼
Falmouth	94¾
Middletown	99
Harrisburg	108
Duncan's Island	124½
Newport	135
Mifflintown	157
Lewistown	171
Waynesburg	185
Aughwick Falls	197
Jack's Mt.	203
Huntingdon	214
Petersburg	221

Alexandria	228
Frankstown	250½
Hollidaysburg	253½

Division No. 3

Allegheny Portage Rail Road

	Miles from Philadelphia
Walker's Point	255
Inclined Plane No. 10	257¼
" " No. 6	263¾
Mountain Br.	272¾
Ebensburg Br.	275¾
Staple Bend	285¾
Johnstown	290¼

Division No. 4

Western Division of the Pennsylvania Canal

	Miles from Philadelphia
Laurel Hill	297
Lockport	307
Blairsville	320
Saltzburg	336
Warrenton	348
Leechburg	358
Aqueduct over Allegheny River	361
Freeport	363

Logan's Ferry	376
Pine Creek.	388
Pittsburg	394¼

The lockage in the central division between Columbia and Hollidaysburg was 747¾ feet; it was forty feet wide at the top, twenty-eight feet at the bottom, and was four feet deep. The dams numbered eighteen; there were thirty-three aqueducts and one hundred and one locks, including guards; those between Columbia and Duncan's Island were 90 x 17 feet; the remainder 90 x 15 feet. About sixteen miles on the Juniata was slackwater navigation in 1834. The western division was the same in width and depth as the central; the lockage from Johnstown to Pittsburg was 471 feet. On this division there were sixty-four locks, 90 x 15 feet, ten dams, two tunnels, sixteen aqueducts, sixty-four culverts, thirty-nine water weirs and one hundred and fifty-two bridges; 21¼ miles was slackwater navigation. The cost of the central division was $5,307,253.26; the Juniata Valley portion costing $3,570,016.29. The western division cost $3,096,522.30; making the

entire original cost of the canal proper $8,403,775.56. The total original cost of the Allegheny Portage Railway to January, 1837, including laying the second track and building the Conemaugh viaduct was $1,634,357.69¾, making the total cost of the "Pennsylvania Canal" $10,038,133.25¾ — half a million dollars more than the Erie Canal, which it also exceeded in length by thirty-one miles. Yet the Chesapeake and Ohio Canal, of only one hundred and eighty-five miles in length, cost a million dollars more than the Pennsylvania Canal.

The later history of the Pennsylvania Canal well illustrates the restlessness of human hearts, and the mighty conquests over nature which restless ambition has made possible. One success, such as the Portage Railway, only suggested a greater one, a railway over the mountain. The road was only in fairly good working order when, in 1836, the Pennsylvania legislature passed a resolution ordering the canal commissioners to have a survey made of the Alleghenies to determine whether the inclined planes could not be dispensed with! Within the next decade a New

Portage Railway was planned which would follow, in part, the route of the old line. The hundreds who were connected with the manipulation of the expensive and cumbersome planes decried, of course, the new road, as we have noted so often in this series; the owners and operators of earlier methods of transportation scoffed at and opposed the new. But the new rail road was not built at once. The opposition carried weight. In April, 1846, however, the Pennsylvania Railway was incorporated to build a through thoroughfare from Philadelphia to Pittsburg. Of all routes the Juniata-Conemaugh passage-way offered an unrivaled course and was quickly chosen. The long contest over right of way in the Potomac Valley could not be reproduced here, as the canal was a state affair. In 1847, contracts had been let for sections eastward from Pittsburg and westward from Harrisburg. In two years the sixty miles between Harrisburg and Lewistown were opened; in the year following the portion from Lewistown to Hollidaysburg was completed. The western division was pushed up the Conemaugh with equal

rapidity and on December 10, 1852, communication between the termini was possible, passengers and freight being transferred across the mountain crest by stage and wagon. In 1854 the railway was completed across the Alleghenies.

In 1850 the legislature took steps to improve the communication between the two ends of the canal by building the proposed portage road and avoiding planes. The work went on simultaneously with the building of the Pennsylvania track; as a temporary accommodation the railway company allowed the portage operators to avoid Plane No. 1, by using the railway track for a distance of four miles east from Conemaugh station, east of Johnstown. Planes No. 2 and No. 3 were avoided by means of a new double track to the foot of Plane No. 4. In 1854 the Pennsylvania Railway was completed across the mountain, and the trade of that company was of course lost to the Portage Railway. On July 1, 1855, the new portage route was in operation, though incomplete.

The great success of the Pennsylvania Railway and its importance to the commer-

cial interests of the commonwealth tended to sink the old canal and its portage railway out of sight. In 1855 this "main line of the public works" was offered for sale, but the offer was not liberal. Another act was passed May 16, 1857, for its sale and June 25, it was purchased by the Pennsylvania Railway Company; possession was taken in August.

After attempting to operate successfully the Portage Railway, the new owners lost $7,220.14 in three months and ordered the line closed. The canal was operated by the Pennsylvania Canal Company in the interest of the railway and that was gradually abandoned. The division from Pittsburg to Johnstown was entirely abandoned by 1864; the portion in the Juniata Valley was abandoned in 1899, and that along the Susquehanna in 1900.

Appendixes

APPENDIX A

AN ACT FOR OPENING AND EXTENDING THE NAVIGATION OF POTOWMACK RIVER[93]

I. Whereas the extension of the navigation of Potowmack river, from tide water to the highest place practicable on the North branch, will be of great public utility, and many persons are willing to subscribe large sums of money to effect so laudable and beneficial a work; and it is just and proper that they, their heirs, and assigns, should be empowered to receive reasonable tolls forever, in satisfaction for the money advanced by them in carrying the work into execution, and the risk they run: And whereas it may be necessary to cut canals and erect locks and other works on both

[93] We present here the first three sections of the act as given in Hening's *The Statutes at Large; being a collection of all the Laws of Virginia from the first session of the Legislature in the year 1619* . . (Richmond, 1823), vol. xi, 9th of Commonwealth, ch. xliii, October, 1784.

sides of the river, and the legislatures of Maryland and Virginia, impressed with the importance of the object, are desirous of encouraging so useful an undertaking: Therefore,

II. *Be it enacted by the General Assembly of Virginia*, That it shall and may be lawful to open books in the city of Richmond, towns of Alexandria and Winchester in this state, for receiving and entering subscriptions for the said undertaking, under the management of Jaquelin Ambler and John Beckley at the city of Richmond, of John Fitzgerald and William Hartshorne at the town of Alexandria, and of Joseph Holmes and Edward Smith at the town of Winchester, and under the management of such persons and at such places in Maryland as have been appointed by the state of Maryland, which subscriptions shall be made personally or by power of attorney, and shall be paid in Spanish milled dollars, but may be paid in foreign silver or gold coin of the value; that the said books shall be opened for receiving subscriptions on the eighth day of February next, and continue open for this purpose until the tenth

day of May next, inclusive; and on the seventeenth day of the said month of May, there shall be a general meeting of the subscribers at the town of Alexandria, of which meeting notice shall be given by the said managers, or any four of them, in the Virginia and Maryland Gazettes, at least one month next before the said meeting; and such meeting shall and may be continued from day to day until the business is finished; and the acting managers at the time and place hereinafter mentioned, shall lay before such of the subscribers as shall meet according to the said notice, the books by them respectively kept, containing the state of the said subscriptions; and if one half of the capital sum hereinafter mentioned, should, upon examination, appear not to have been subscribed, then the said managers at the said meeting, are empowered to take and receive subscriptions to make up the deficiency; and a just and true list of all the subscribers, with the sums subscribed by each, shall be made out and returned by the said managers, or any four or more of them, under their hands, into the general court of each state,

to be there recorded; and in case more than two hundred and twenty-two thousand two hundred and twenty-two dollars and two ninths of a dollar, shall be subscribed, then the same shall be reduced to that sum by the said managers, or a majority of them, by beginning at and striking off a share from the largest subscription or subscriptions, and continuing to strike off a share from all subscriptions under the largest, and above one share, until the sum is reduced to the capital of two hundred and twenty-two thousand two hundred and twenty-two dollars and two-ninths of a dollar, or until a share is taken from all subscriptions above one share, and lots shall be drawn between the subscribers of equal sums, to determine the numbers in which such subscribers shall stand, on a list to be made for striking off as aforesaid; and if the sum subscribed still exceeds the capital aforesaid, or all the subscriptions are reduced to one share: and if there still be an excess, then lots to be drawn to determine the subscribers who are to be excluded, to reduce the subscriptions to the capital aforesaid,

which striking off shall be certified in the list aforesaid, and the said capital sum shall be reckoned and divided into five hundred shares of four hundred and forty-four dollars and four-ninths of a dollar each, of which every person subscribing may take and subscribe for one or more whole shares, and not otherwise. *Provided*, That unless one half of the said capital shall be subscribed as aforesaid, all subscriptions made in consequence of this act, shall be void, and in case one half and less than the whole of the said capital shall be subscribed as aforesaid, then the president and directors are hereby empowered and directed to take and receive the subscriptions which shall first be offered in whole shares as aforesaid, until the deficiency shall be made up, a certificate of which additional subscriptions shall be made under the hands of the president and directors, or a majority of them for the time being, and returned to and recorded in the general courts, aforesaid.

III. *And be it enacted*, That in case one half of the said capital, or a greater sum, shall be subscribed as aforesaid, the said

subscribers, and their heirs and assigns, from the time of the said first meeting, shall be, and are hereby declared to be incorporated into a company, by the name of the "Potowmack Company," and may sue and be sued as such; and such of the said subscribers as shall be present at the said meeting, or a majority of them, are hereby empowered and required to elect a president and four directors, for conducting the said undertaking, and managing all the said company's business and concerns, for and during such time, not exceeding three years, as the said subscribers, or a majority of them, shall think fit. And in counting the votes of all general meetings of the said company, each member shall be allowed one vote for every share, as far as ten shares, and one vote for every five shares above ten, by him or her held at the time in the said company; and any proprietor, by writing under his or her hand, executed before two witnesses, may depute any other member or proprietor to vote and act as proxy for him or her, at any general meeting.

APPENDIX B

AN ACT INCORPORATING THE CHESAPEAKE AND OHIO CANAL COMPANY[94]

Whereas a navigable canal from the tide water of the river Potomac, in the District of Columbia, to the mouth of Savage creek, on the north branch of said river, and extending thence across the Alleghany mountain, to some convenient point on the navigable waters of the river Ohio, or some one of its tributary streams, to be fed, through its course on the east side of the mountain, by the river Potomac and the streams which empty therein, and on the western side of the mountain, and in passing over the same, by all such streams of water as may be beneficially drawn thereto by feeders, dams, or any other practicable mode, will be a work of great

[94] This act, of which we present here the first two sections, was passed by the Virginia legislature January 27, 1824. It was published in *Laws Relative to the Chesapeake and Ohio Canal* (Washington, 1827).

profit and advantage to the people of this State, and of the neighboring States, and may ultimately tend to establish a connected navigation between the eastern and western waters, so as to extend and multiply the means and facilities of internal commerce, and personal intercourse between the two great sections of the United States, and to interweave more closely all the mutual interests and affections that are calculated to consolidate and perpetuate the vital principles of Union; and whereas it is represented to this General Assembly that the Potomac Company are willing and desirous that a charter shall be granted to a new company, upon the terms and conditions hereinafter expressed; and that the charter of the present company shall cease and determine:

1. *Be it therefore enacted by the General Assembly of Virginia*, That, as soon as the Legislatures of Maryland and Pennsylvania, and the Congress of the United States, shall assent to the provisions of this act, and the Potomac company shall have signified their assent to the same, by their corporate act, a copy whereof shall be

delivered to the Executives of the several States aforesaid, and to the Secretary of the Treasury of the United States, there shall be appointed by the said Executives and the President of the United States, three commissioners on the part of each State, and the Government of the United States, any one of whom shall be competent to act for his respective government. The said commissioners shall cause books to be opened at such times and places as they shall think fit, in their respective States, and the District of Columbia, under the management of such persons as they shall appoint, for receiving subscriptions to the capital stock of the company hereinafter incorporated; which subscriptions may be made, either in person or by power of attorney; and notice shall be given in such manner as may be deemed advisable, by one or more of the said commissioners, of the time and places of opening the books.

2. And the said commissioners shall cause the books to be kept open at least forty days. And within twenty days after the expiration thereof, shall call a general

meeting of the subscribers at the city of Washington, of which meeting notice shall be given, by a majority of the commissioners aforesaid, in at least four of the newspapers printed in Pennsylvania, Maryland, Virginia, and the District of Columbia, at least twenty days next before the said meeting; and such meeting shall, and may be continued from day to day until the business is finished; and the commissioners at the time and place aforesaid, shall lay before such of the subscribers as shall meet according to the said notice, the book containing the state of the said subscriptions: and, if one fourth of the capital sum of six millions of dollars should appear not to have been subscribed, then the said commissioners, or a majority of them, at the said meeting, are empowered to take and receive subscriptions to make up such deficiency, and may continue to take and receive such subscriptions for the term of twelve months thereafter; and a just and true list of all the subscribers, with the sum subscribed by each, shall be made out, and returned by the said commissioners, or by a majority of them, under their hands,

to the Board of Public Works of this State, to the Governor and Council of the State of Maryland, to the Secretary of State of the State of Pennsylvania, and to the Secretary of the Treasury of the United States, to be carefully preserved; and in case more than six millions of dollars shall be subscribed, then the sum subscribed shall be reduced to that amount, by the said commissioners, or a majority of them, by beginning at and striking off a share from the largest subscription or subscriptions, and continuing to strike off a share from all subscriptions under the largest and above one share, until the same is reduced to the capital aforesaid, or until a share is taken from all subscriptions above one share; and lots shall be drawn between subscribers of equal sums, to determine the number of shares which each subscriber shall be allowed to hold, on a list to be made for striking off as aforesaid: and if the sum subscribed still exceed the capital aforesaid, then to strike off by the same rule, until the sum subscribed is reduced to the capital aforesaid; or all the subscriptions reduced to one share respectively: and, if

there still be an excess, then lots shall be drawn to determine the subscribers who are to be excluded, in order to reduce the subscription to the capital aforesaid; which striking off shall be certified on the lists aforesaid; and the said capital stock of the company, hereby incorporated, shall consist of six million of dollars, divided into sixty thousand shares, of one hundred dollars each; of which every person subscribing may take, and subscribe for one or more whole shares; and such subscriptions may be paid and discharged either in the legal currency of the United States, or in the certificates of stock of the present Potomac company, at the par or nominal value thereof, or in the claims of the creditors of the said company, certified by the acting president and directors to have been due, for principal and debt, on the day on which assent of the said company shall have been signified by their corporate act as hereinbefore required: *Provided*, that the said certificates of stock shall not exceed, in the whole amount, the sum of three hundred and eleven thousand one hundred and eleven dollars and eleven cents; nor

the said claims the sum of one hundred and seventy-five thousand eight hundred dollars: *Provided, also*, that the stock so paid for in certificates of the stock of the present company, shall be entitled to dividend, only as hereinafter provided: and that no payment shall be received, in such certificates of stock, until the Potomac company shall have executed the conveyance prescribed by the thirteenth section of this act: *And, provided*, that, unless one-fourth of the said capital shall be subscribed, as aforesaid, all subscriptions made in consequence of this act shall be void; and, in case one fourth, and less than the whole capital, shall be subscribed as aforesaid, then the said commissioners, or a majority of them, are hereby empowered and directed to take and receive the subscriptions, which shall first be offered in whole shares, as aforesaid, until the deficiency shall be made up; a certificate of which additional subscription shall be made, under the hands of said commissioners, or a majority of them, for the time being, and returned as aforesaid.

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